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ABSTRACT

This Worker Trait Group Guide was designed for students as a basic reference in the Career Information System (CIS) component of the Career Decision-Making (CDM) program developed by the Appalachia Educational Laboratory. (See CE 019 229 for an overview of the total CDM program.) This guide contains descriptive information about twelve broad areas and sixty-six groups of occupations. The twelve areas are related to general work interests of people; the sixty-six groups are divisions of the twelve areas and represent clusters of occupations requiring similar worker characteristics, hence the title, Worker Trait Groups (WTG). The twelve WTG areas are the following: artistic, scientific, nature, authority, mechanical, industrial, business detail, persuasive, accommodating, humanitarian, social/business, and physical performing. Each worker trait group is divided into three parts: a description of the group; a list of worker qualifications; and a list of occupations in the group. Nine appendixes are provided to help the student better utilize the qualifications profile section in each Worker Trait Group. (A professional manual, CE 019 233, and student's guide, CE 019 239, explain how this document is used in conjunction with other materials in the CDM Career Information System component.) (BM)

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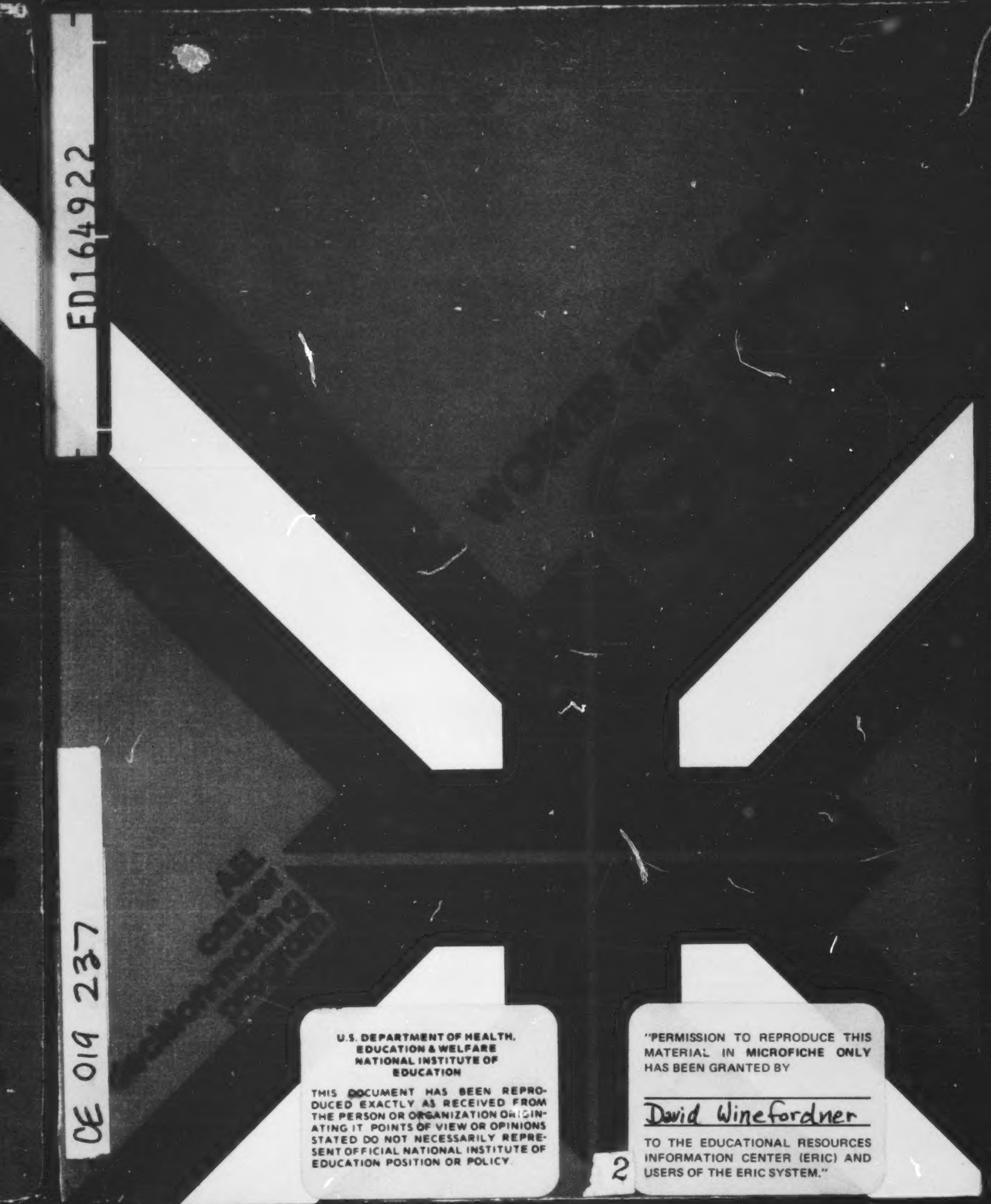

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

WORKER TRAIT GROUP
GUIDE

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FOREWORD

The **Career Information System** (CIS), developed by the Appalachia Educational Laboratory (AEL), uses the Worker Trait Group approach to organize career information resources. By framing information around a worker rather than an industry or product orientation, the approach helps students integrate self-exploration with exploration of the world of work.

Information about the requirements, routines, and rewards of occupations is provided through the Worker Trait Group descriptions which are homogeneous in terms of worker characteristics. Students are able to link their own interests, aptitudes, and other personal characteristics to those of the related Worker Trait Groups. This approach enables students to explore broad groups of occupations which parallel their own unique characteristics, before focusing in on specific occupations for more in-depth exploration. Concurrently, students are able to tie these groups of occupations to their own course selection or leisure time activity preferences.

While the Worker Trait Group approach is based on the **Dictionary of Occupational Titles,** 4th Edition, AEL has used it, in the **Career Information System,** in a most innovative way as an organizing structure for managing career information. I am very excited by this approach because it is person oriented, in terms of how the information is presented and how it is used.

Corinne H. Rieder

Corinne H. Rieder
Associate Director
Education and Work Group
National Institute of Education

PREFACE

The **Worker Trait Group Guide** has been designed as a basic reference for use in the **Career Decision-Making Program** developed by the Appalachia Educational Laboratory (AEL), under funding from the Education and Work Group, National Institute of Education. The **Worker Trait Group Guide** contains descriptive information about 12 broad Areas and 66 Groups of occupations. The 12 Areas are related to the general work interests of people. The 66 Groups are divisions of the 12 Areas and represent clusters of occupations requiring similar worker characteristics. Because of this, these Groups are called Worker Trait Groups.

The **Worker Trait Group Guide** may be used by itself as a source of information about the Areas and Worker Trait Groups, but will have maximum value when used with other career exploration materials. The Worker Trait Groups are used as the basic structure for the **Career Decision-Making Program's Career Information System** (CIS). In using the **Worker Trait Group Guide,** you may go from a Worker Trait Group you have explored to occupational information and other career information resources which are filed and/or indexed by Worker Trait Groups. Prior to the exploration of an occupation, you should have an understanding of the related Worker Trait Group and be aware of other occupations belonging to the Group.

Hopefully, the **Worker Trait Group Guide** will assist you in the critical process of career exploration and decision-making, thus making it possible to become aware of and utilize your potential in seeking, identifying, and pursuing rewarding careers.

David W. Winefordner

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ACKNOWLEDGMENTS AND DEDICATION

The staff of the Division of Career Guidance, Appalachia Educational Laboratory (AEL), wish to express their appreciation to the many individuals who have contributed to the successful development and publication of the **Career Decision-Making Program.** Therefore, this program is dedicated to former staff members, AEL staff, consultants, field test site personnel, students, advisory committees, McKnight Publishing Company staff, and others who have contributed in many ways.

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INTRODUCTION

All occupations in the world of work have been organized by the U. S. Department of Labor into twelve broad areas based upon the interests of workers. The occupations have been further organized into 66 different groups called Worker Trait Groups. The occupations in each Worker Trait Group include workers with **similar** qualifications. The Worker Trait Groups are based upon the following types of worker qualifications:

- Level(s) of general educational development.
- Amount of specific training and experience.
- Types of activities preferred by workers.
- Ability to adjust to different types of working situations.
- Level(s) of aptitudes (ability to learn).
- Physical capacities.
- Level(s) of complexity at which the worker is involved with data (working with information), people (working with people), and things (working with tools, machines, or materials).

The basis upon which the Worker Trait Groups are organized can help you relate your own interests, abilities, and aptitudes to the occupations' requirements. As you use the **Worker Trait Group Guide** to explore career fields or specific occupations, you should keep the following in mind. The level of any worker qualifications shown for each Worker Trait Group is the level related to the average successful performance of workers in the group. Some workers in occupations within a group may have higher qualifications. Other workers with lower qualifications can also be successful workers. Also, not all qualifications shown for each group will apply to **every** occupation in the group. Keep in mind that each Worker Trait Group describes a group of related occupations, never a single occupation.

The 66 Worker Trait Groups in the **Worker Trait Group Guide** are based upon the Groups described in the **Supplement to the Dictionary of Occupational Titles.** The **Worker Trait Group Guide** provides additional and easier to read information to help you in your career planning in the following ways:

- Gain a general understanding about the world of work.
- Identify Worker Trait Groups which relate to what you know about yourself, such as your special interests and abilities, or the type of work you want to do.
- Study and explore groups of occupations so that you become familiar with the qualifications required and the training and experience needed.
- Learn more about specific occupations which may interest you.
- Learn about other occupations which may be similar to specific occupations which may interest you.

HOW TO USE THE GUIDE

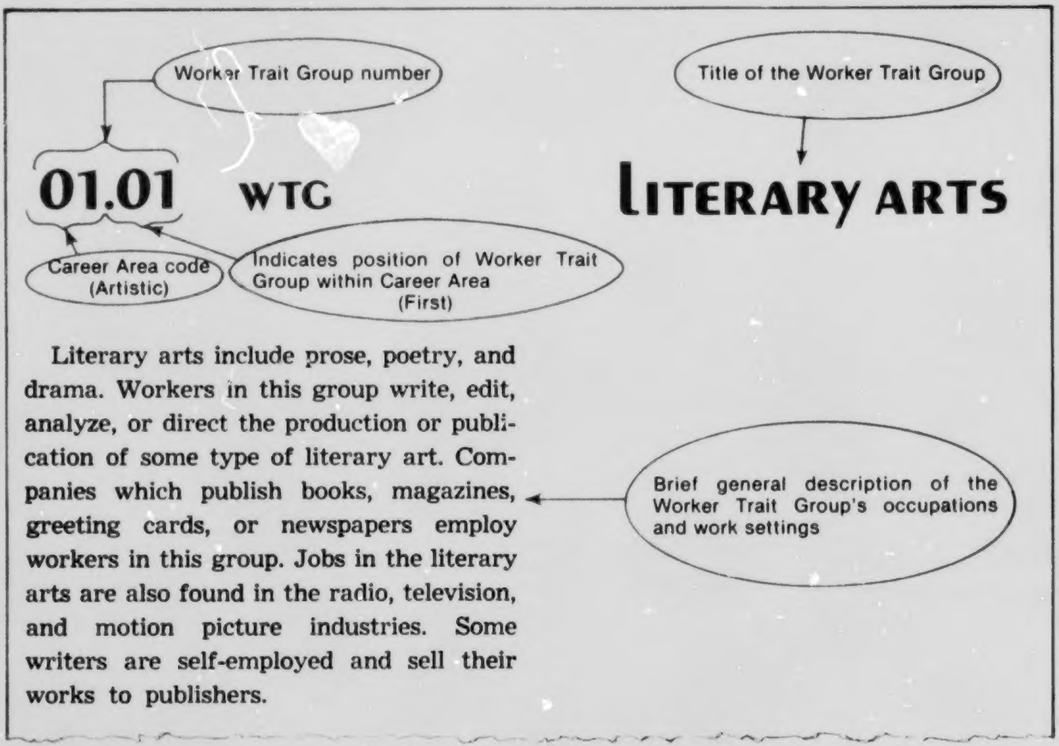
The Worker Trait Group Guide contains two major sections: (1) the Worker Trait Group descriptions and (2) a series of nine appendices.

Each Worker Trait Group is divided into three parts:

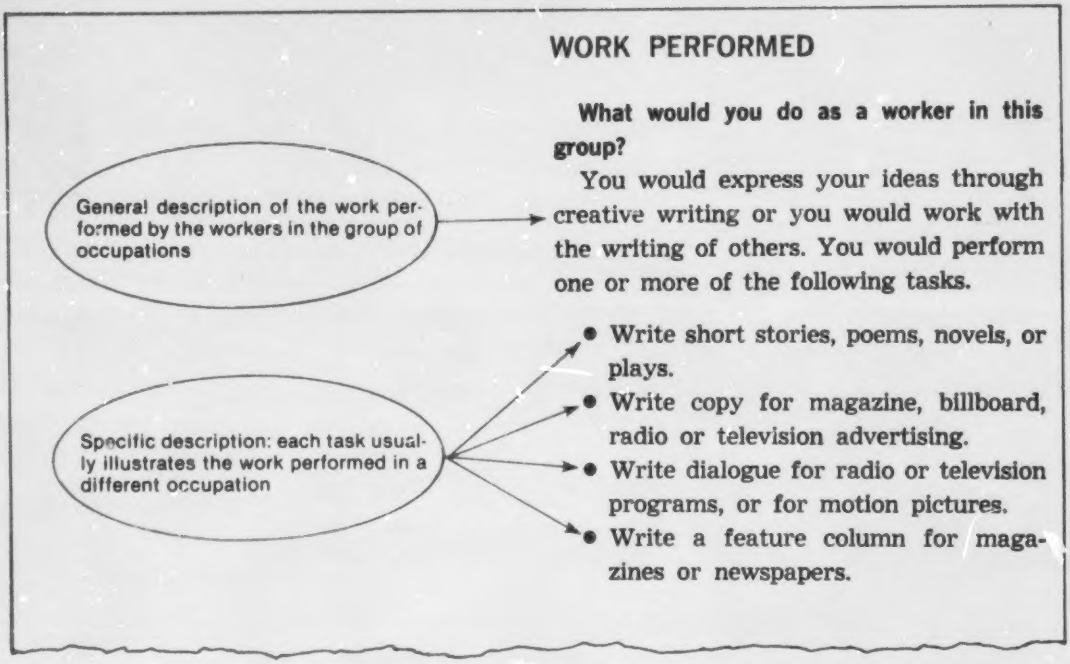
- A description of the group.
- A list of worker qualifications.
- A list of occupations in the group.

Each of the appendices provides more detailed information to help you make better use of the Qualifications Profile section in each Worker Trait Group description.

The Worker Trait Groups are numbered from 01.01: Literary Arts through 12.02: Physical Feats. The first two digits identify the Career Area (01 through 12) into which the Worker Trait Group falls. The last two digits distinguish one Worker Trait Group from another within the same Career Area. The Worker Trait Groups are described in exactly the same manner to make it easier for you to compare them. The following examples show one of the Worker Trait Groups section by section to help you understand its organization and content.


Worker Trait Group number
Title of the Worker Trait Group
01.01 WTG
LITERARY ARTS
Career Area code (Artistic)
Indicates position of Worker Trait Group within Career Area (First)
Brief general description of the Worker Trait Group's occupations and work settings

Literary arts include prose, poetry, and drama. Workers in this group write, edit, analyze, or direct the production or publication of some type of literary art. Companies which publish books, magazines, greeting cards, or newspapers employ workers in this group. Jobs in the literary arts are also found in the radio, television, and motion picture industries. Some writers are self-employed and sell their works to publishers.



WORK PERFORMED

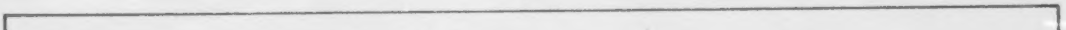
What would you do as a worker in this group?

You would express your ideas through creative writing or you would work with the writing of others. You would perform one or more of the following tasks.

- Write short stories, poems, novels, or plays.
- Write copy for magazine, billboard, radio or television advertising.
- Write dialogue for radio or television programs, or for motion pictures.
- Write a feature column for magazines or newspapers.

General description of the work performed by the workers in the group of occupations

Specific description: each task usually illustrates the work performed in a different occupation



WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Express original ideas or interpret the ideas of others through writing.
- Analyze writings for form, style, plot, and artistic value.
- Know the rules of grammar and have a large vocabulary.

A summary of the most important skills, abilities, and interests needed by workers in the group to perform well.

CLUES

A list of questions to help you decide if you have or can develop the skills, abilities, and interests related to the group of occupations. Your personal experiences can help you answer the questions.

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you written book reports? Do you enjoy reviewing the writing of others?
- Have you written an original story? Can you create characters and situations that interest and entertain others?

PREPARATION

The **training** and **experience** worker's need to enter the occupations in the group.

How can you prepare for and enter this kind of work?

Jobs in this field require extensive writing experience. Working for the school newspaper or yearbook can help you gain writing experience. Writing assignments in English and journalism courses can also help you gain it. Community colleges and universities offer programs that help prepare for this work. Courses in English and creative writing develop important skills. Courses in art, music, or drama help critics in these fields gain the needed knowledge and background. Editing jobs require several years of writing experience.

Self-employed writers often use literary agents to help them find publishers. These agents make suggestions about writing topics and style. Publishers may hire free-lance writers to write about a certain subject. To be hired, writers should frequently submit writing samples to magazines and other publishers. Some employers require samples of published writings.

OTHER CONSIDERATIONS

Additional information you would need to consider →

What else should you know about these jobs?

Most new workers in writing start with routine assignments such as proofreading. Few newcomers are employed as creative writers.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

← How to use the Qualifications Profile section of the Worker Trait Group description

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.
8. Activities involving creative thinking.

See Appendix A of the **Worker Trait Group Guide** for detailed work activity descriptions →

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

3. Planning and directing an entire activity.
4. Dealing with people.
5. Influencing people's opinions, attitudes, and judgments.

See Appendix B of the **Worker Trait Group Guide** for detailed work situation descriptions

WORKER FUNCTIONS

See Appendix C of the **Worker Trait Group Guide** for detailed information on worker functions

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Synthesizing
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
5. Talking and/or hearing.
6. Seeing.

See Appendix D of the **Worker Trait Group Guide** for detailed descriptions of the physical demands

See Appendix E of the **Worker Trait Group Guide** for detailed descriptions of the working conditions

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

See Appendix F of the **Worker Trait Group Guide** for aptitude definitions

Aptitudes	**Levels** Low to High 5 4 3 2 1
G – General	2 – 1
V – Verbal	2 – 1

GENERAL EDUCATION DEVELOPMENT (GED)

See Appendix G of the **Worker Trait Group Guide** for the GED level definitions

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **5.**

Specific description illustrating the Worker Trait Group GED level

Workers apply logical thinking to express ideas through creative writing. They collect or interpret information. They may use their creative ability to edit or guide the work of others. These workers deal with abstract concepts such as styles and symbols. They also work with reference materials and typewriters.

17

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.

A – To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

C – College studies in English, literature, or composition.

T – Studies in English at the community college level.

NFT – Some occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from 2 years up to and over 10 years (SVP 7, 8, 9).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

Important Courses

- Courses required for entrance to post high school formal programs.
- Language Skills, Literature, Composition.

Helpful Courses

- Music, Drama.

This section describes the different ways by which people can prepare for the group s occupations. See Appendix H for detailed information.

OCCUPATIONS IN LITERARY ARTS

DOT code

Selected list of occupations belonging to the Worker Trait Group. Additional information and a complete listing of these occupations may be found in the **Dictionary of Occupational Titles (DOT) and its Supplement**. See Appendix I of the **Worker Trait Group Guide** for more information.

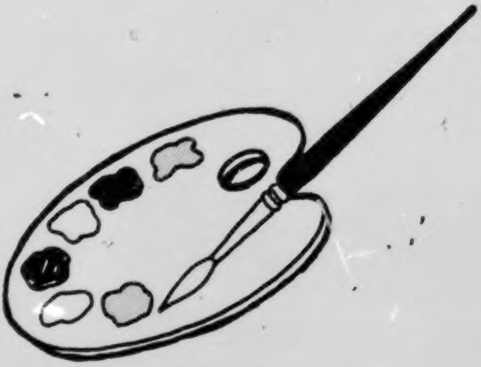
These numbers indicate the specific worker functions (data / people / things) of the occupation. See Appendix C of the **Worker Trait Group Guide** for details.

01.

ARTISTIC

This is an interest in creative expression of **feelings** or **ideas.**

You can satisfy this interest in several of the creative or performing arts fields. You may enjoy literature. Perhaps writing or editing would satisfy you. You may prefer to work in the performing arts. You could direct or perform in drama, music, or dance. You may enjoy the visual arts. You could find a job as a critic in painting, sculpture, or ceramics. You may want to use your hands to create or decorate products. You may also prefer to model or develop entertaining acts.



LITERARY ARTS

Literary arts include prose, poetry, and drama. Workers in this group write, edit, analyze, or direct the production or publication of some type of literary art. Companies which publish books, magazines, greeting cards, or newspapers employ workers in this group. Jobs in the literary arts are also found in the radio, television, and motion picture industries. Some writers are self-employed and sell their works to publishers.

WORK PERFORMED

What would you do as a worker in this group?

You would express your ideas through creative writing or you would work with the writing of others. You would perform one or more of the following tasks.

- Write short stories, poems, novels, or plays.
- Write copy for magazine, billboard, radio or television advertising.
- Write dialogue for radio or television programs, or for motion pictures.
- Write a feature column for magazines or newspapers.
- Write reviews of literary works or artistic performances.
- Edit the writing of others.
- Develop ideas and set policies for a publisher.

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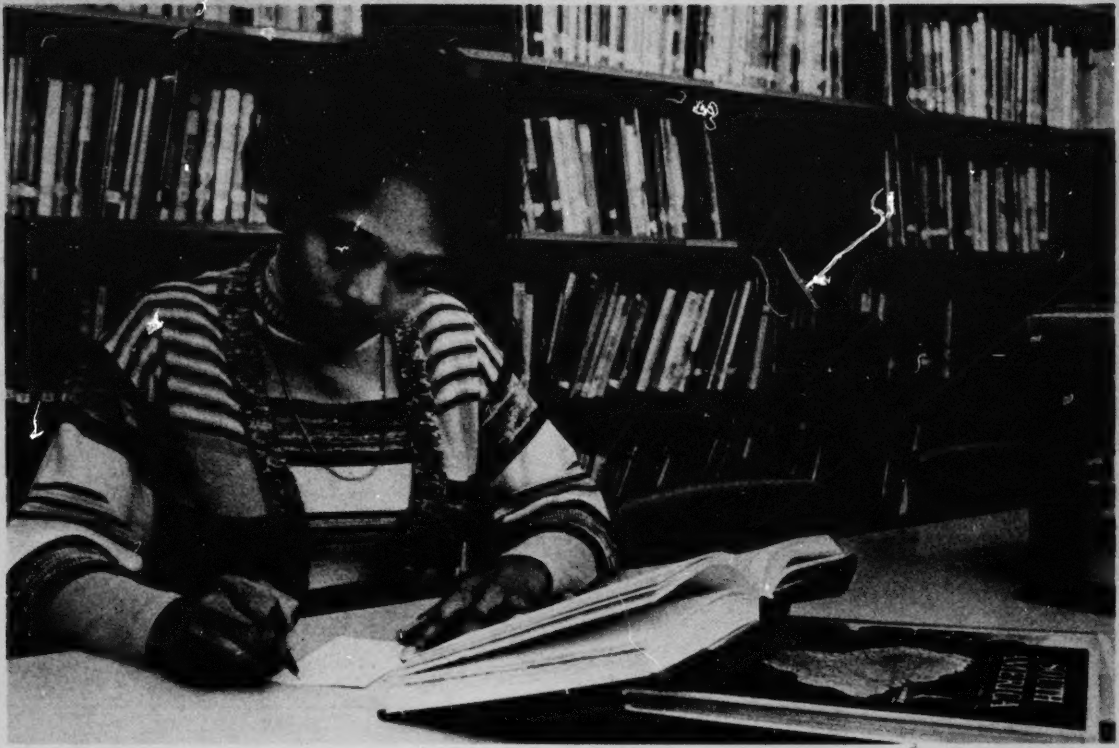
Drama critics attend artistic performances to prepare and write their reviews on author's plays.



Writing novels often requires a great deal of research to insure accuracy.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Express original ideas or interpret the ideas of others through writing.
- Analyze writings for form, style, plot, and artistic value.
- Know the rules of grammar and have a large vocabulary.
- Edit or critique the writing of others.
- Create advertising copy that will attract readers, viewers, or listeners.
- Plan and direct the work of a staff of writers.

Gathering information for your school newspaper's news features can help you gain the experience you need.

CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you written book reports? Do you enjoy reviewing the writing of others?
- Have you written an original story? Can you create characters and situations that interest and entertain others?
- Have you written poems? Do you enjoy reading or writing poetry?
- Have you edited or written feature articles for a school paper or yearbook?
- Have you played word games or solved crossword puzzles? Do you have a large vocabulary?

PREPARATION

How can you prepare for and enter this kind of work?

Jobs in this field require extensive writing experience. Working for the school newspaper or yearbook can help you gain writing experience. Writing assignments in English and journalism courses can also help you gain it. Community colleges and universities offer programs that help prepare for this work. Courses in English and creative writing develop important skills. Courses in art, music, or drama help critics in these fields gain the needed knowledge and background. Editing jobs require several years of writing experience.

Self-employed writers often use literary agents to help them find publishers. These agents make suggestions about writing topics and style. Publishers may hire free-lance writers to write about a certain subject. To be hired, writers should frequently submit writing samples to magazines and other publishers. Some employers require samples of published writings.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Most new workers in writing start with routine assignments such as proofreading. Few newcomers are employed as creative writers.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.
8. Activities involving creative thinking.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

3. Planning and directing an entire activity.
4. Dealing with people.
5. Influencing people's opinions, attitudes, and judgments.
7. Making decisions using personal judgment.
9. Interpreting and expressing feelings, ideas, or facts.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Synthesizing
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low to High 5 4 3 2 1
G – General	2 – 1
V – Verbal	2 – 1

GENERAL EDUCATION DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **5.**

Workers apply logical thinking to express ideas through creative writing. They collect or interpret information. They may use their creative ability to edit or guide the work of others. These workers deal with abstract concepts such as styles and symbols. They also work with reference materials and typewriters.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.
A – To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

C – College studies in English, literature, or composition.
T – Studies in English at the community college level.
NFT – Some occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from 2 years up to and over 10 years (SVP 7, 8, 9).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

Important Courses

- Courses required for entrance to post high school formal programs.
- Language Skills, Literature, Composition.

Helpful Courses

- Music, Drama.

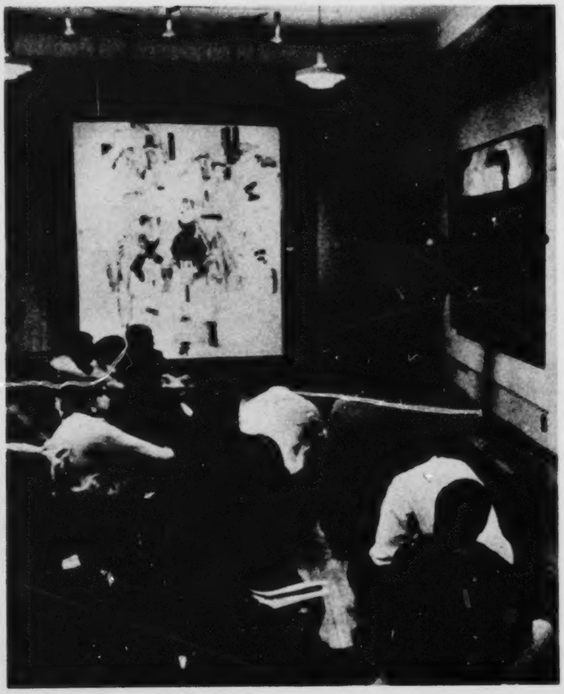
OCCUPATIONS IN LITERARY ARTS

Copy Writer	**131.067-014**
Critic	**131.067-018**
Editor, Book	**132.067-014**
Editor, Film	**962.264-010**
Editor, Publications	**132.037-022**
Editorial Writer	**131.067-022**
Playwright	**131.067-038**
Producer	**187.167-174**
Writer, Prose, Fiction and Nonfiction	**131.067-046**

VISUAL ARTS

Visual arts include drawing, painting, sculpture, ceramics, photography, and design. Advertising agencies, printing and publishing firms, art schools, and department stores employ visual artists. Television and motion picture studios and industrial firms also employ these workers. Some artists are self-employed. They may teach or may sell their work themselves or through an agent.

Cornell University



Art instructors use existing works of art to train students in visual arts techniques.

WORK PERFORMED

What would you do as a worker in this group?

You would use your talent to create visual art that expresses your ideas and feelings. You would perform one or more of the following tasks.

- Paint or draw landscapes, portraits, or still life.
- Design and decorate movie or television scenery.
- Design store window displays.
- Create designs used in weaving cloth or decorating pottery.
- Photograph people, places, or events for a magazine or newspaper.
- Plan advertising layouts for department stores.
- Draw cartoons for animated movie features.
- Shape wood or stone into artisitc forms.
- Instruct art students.

Armstrong Cork Co.

Interior designers arrange exhibits to display a manufacturer's products to wholesalers at trade fairs.

Photographers must be able to handle and use a wide variety of equipment skillfully.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Create visual artwork in drawing, painting, sculpture, or photography.
- Form a mental image of how shapes and forms can be combined and arranged in an artistic way.
- Recognize different shades and tones of color.
- Move the eyes, hands, and fingers skillfully to use brushes, pens, pencils, chisels, or cameras.
- Teach and demonstrate various art forms.

You can develop your skill and talent by pursuing a hobby in your chosen art form.

CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you taken art courses or private lessons? Were your works selected for display or competition? Have you won any awards for artwork?
- Have you painted scenery for plays? Did the scenery achieve the desired effect?
- Do you paint or draw as a hobby? Do others admire your work?
- Have you taken photographs for the school paper or as a hobby? Do you try to get the best possible arrangement, lighting, and exposure?
- Have you visited art shows and galleries? Do you regularly read articles or magazines about art?
- Have you modeled objects from clay or carved figures from wood or soap? Do you enjoy creating designs and figures?

PREPARATION

How can you prepare for and enter this kind of work?

Most workers in this field specialize in one art form. Some people with exceptional talent become artists with little or no formal training. However, training is often needed for employment.

A college degree in fine arts or commercial art is one type of preparation. Some artists earn a two- or three-year degree at an art institute. Study with a private instructor often provides added training. Jobs in appraising or restoring art objects require a background in art history. Artists need to know the chemistry of paints and protective coatings to restore artworks.

Some employers hire talented persons with vocational school or junior college training in commercial art or photography. These workers are trained on the job. They are assigned more difficult work as they become ready for it. Industrial design jobs require artistic and engineering skills. Workers in these jobs need these skills to make scale drawings and to illustrate technical information. To be hired, artists must show samples or photographs of their work.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Artists who can create artwork in a variety of art forms can find employment more easily than those who specialize.

Many free-lance artists hold jobs in related art fields until their work is in demand.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

01.02 WTG VISUAL ARTS

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

6. Activities involving the communication of ideas and information.
8. Activities involving creative thinking.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

3. Planning and directing an entire activity.
4. Dealing with people.
7. Making decisions using personal judgment.
9. Interpreting and expressing feelings, ideas, or facts.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Synthesizing
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	☐	☐	■	– Precision Working

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
L Light work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performances of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low to High 5 4 3 2 1
G – General	3 – 2
S – Spatial	2
P – Form Perception	2
K – Motor Coordination	3 – 2
F – Finger Dexterity	3 – 2 – 1
M – Manual Dexterity	3 – 2
C – Color Discrimination	2

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5.

Workers use logical thinking and creative talent to draw, paint, sculpt, or photograph people or objects. They interpret technical instructions. They use imagination and creativity to deal with abstract artistic concepts and forms. They also use concrete materials such as art supplies.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.
A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

C – College studies in studio arts or graphic arts.
T – Courses in studio or graphic arts at community colleges, technical schools, and private art schools.
V – Vocational courses in graphic arts or drafting.
NFT – Some occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from 2 years up to and over 10 years (SVP 7, 8, 9).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for entrance to post high school formal programs.
- Art

OCCUPATIONS IN VISUAL ARTS

Art Director	141.031-010	**Illustrator, Medical and Scientific**	141.061-026
Art Director	142.031-010	**Industrial Designer**	142.061-026
Audiovisual Production Specialist	149.061-010	**Interior Designer**	142.051-014
Cartoonist	141.061-010	**Manager, Display**	142.031-014
Cloth Designer	142.061-014	**Memorial Designer**	142.061-030
Clothes Designer	142.061-018	**Painter**	144.061-010
Commercial Designer	141.081-014	**Photographer Helper**	976.667-010
Creative Director	141.067-010	**Photographer, Motion Picture**	143.062-022
Displayer, Merchandise	298.081-010	**Photographer, Still**	143.062-030
Fashion Artist	141.061-014	**Photojournalist**	143.062-034
Floral Designer	142.081-010	**Sculptor**	144.061-018
Fur Designer	142.081-014	**Set Decorator**	142.061-042
Graphic Designer	141.061-018	**Set Designer**	142.061-050
Illustrator	141.061-022	**Teacher, Art**	149.021-010

PERFORMING ARTS: DRAMA

Drama, as used here, includes plays, musicals, readings, pantomimes, and similar performances. Tasks in this group include performing, teaching, and directing. Radio stations, television and motion picture studios, and theaters employ workers in this group. Schools and colleges also employ some of these workers.

Columbia Artists Management, Inc.

A mime uses body gestures and facial expressions to tell a story to an audience.

WORK PERFORMED

What would you do as a worker in this group?

You would use words and actions to play a role or entertain an audience, or you would help others with their roles. You would perform one or more of the following tasks.

- Act in a play or movie.
- Present a comic or dramatic monolog in a night club or on a television show.
- Do a pantomime using only body movements and facial expressions.
- Instruct others in acting methods.
- Direct actors and others in a play or movie.
- Read announcements or commercials for radio or television.

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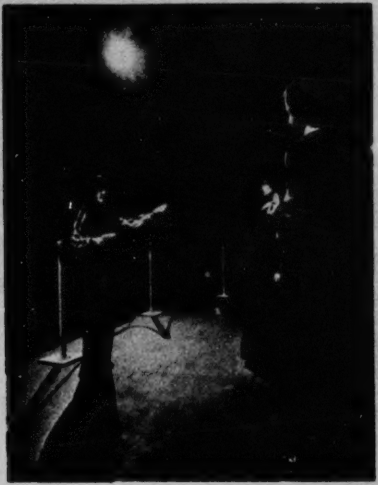


Would you rather be the director or the performer in this production?

WORKER REQUIREMENTS

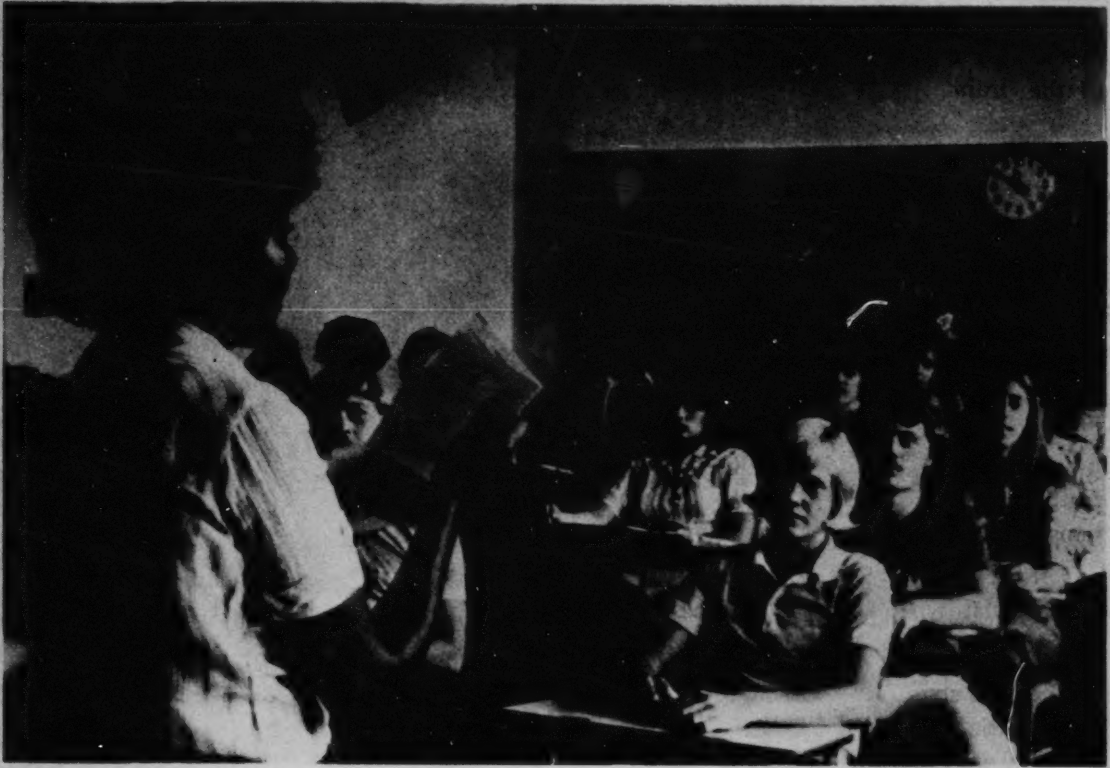
What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Express ideas and emotions through facial expressions and body motions.
- Perform before an audience with poise and self-confidence.
- Speak clearly and loudly.
- Memorize dialogue.
- Direct actors and instruct drama students.

The University of Alabama

The ability to relate to an unseen audience is important in radio communications.



Taking part in speech contests can help you gain poise and self-confidence before an audience.

CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you attended plays or movies? Do you enjoy them? Can you judge the quality of the acting?
- Have you been on a debate team? Have you taken part in a public speaking contest?
- Have you performed in a school or community theater group? Did you enjoy the experience?
- Have you been a master of ceremonies for a school event? Were you at ease before the audience?
- Are you able to memorize easily? Can you remember lines and cues when you perform before an audience?
- Have you had courses in speech? Did you enjoy them?

PREPARATION

How can you prepare for and enter this kind of work?

Workers in this group must have both training and experience in the dramatic arts. High school speech classes, debate programs, and plays provide valuable training and experience. Colleges offer programs in drama or communications leading to bachelor's and master's degrees. These programs include courses in speech, pantomime, acting, and directing. Special schools and theater groups also offer training in the dramatic arts.

Experience in many productions is very important. Community and college theater groups provide experiences for the amateur. Dinner theaters, summer stock companies, and repertory groups provide part-time and entry jobs.

Jobs in directing require extensive experience. Dramatic coaching and college teaching often require advanced degrees in dramatics. High school teachers of drama, speech, or communications must meet state licensing requirements.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Dramatic artists often have demanding work schedules. Rehearsals and performances may start early and run late every day. Frequent travel may be necessary.

College teachers, theatrical agents, and radio and television station managers often know about job openings in the dramatic arts. Community theater members may have professional experience. They may be willing to advise people who are interested in this field.

Work assignments sometimes depend upon a person's voice or physical appearance. Distinctive physical features may be an asset.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

01.03 WTG PERFORMING ARTS: DRAMA

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.
8. Activities involving creative thinking.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

3. Planning and directing an entire activity.
4. Dealing with people.
7. Making decisions using personal judgment.
9. Interpreting and expressing feelings, ideas, or facts.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Coordinating
PEOPLE	☐	■	☐	– Diverting
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	**Levels**				
	Low		to		High
	5	4	3	2	1
G – General				2	
V – Verbal				2	

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **5.**

Workers apply logical thinking, technical knowledge, and creativity to communicate a role or thought to an audience through words or actions. These workers give or interpret a variety of instructions presented in written or spoken form. They deal with abstract variables such as emotional portrayal and concrete variables such as stage props and scripts.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.

A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

C – College studies in speech or dramatics.

NFT – Some occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from 1 year up to and over 10 years (SVP 6, 7, 8, 9).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

Important Courses

- Courses required for entrance to post high school formal programs.
- Speech
- Drama

Helpful Courses

- Music

OCCUPATIONS IN PERFORMING ARTS: DRAMA

Actor	**150.047-010**
Announcer	**159.147-010**
Comedian	**159.047-014**
Communications Technician	**962.362-010**
Director, Motion Picture	**159.067-010**
Director, Stage	**150.067-010**
Disk Jockey	**159.147-014**
Dramatic Coach	**150.027-010**
Producer	**159.117-010**
Teacher, Drama	**150.027-014**

PERFORMING ARTS: MUSIC

Music, as used here, includes playing an instrument, singing, arranging, and composing. Teaching music and directing music groups are also included. Workers in this group can find jobs in theaters, television and radio stations, concert halls, or wherever music is performed. Schools and colleges, recording studios, and music publishing companies also employ these workers.

WORK PERFORMED

What would you do as a worker in this group?

You would express ideas and feelings through music. You would perform one or more of the following tasks.

- Sing alone or with others before an audience.
- Play one or more instruments in a musical group.
- Perform solos on an instrument such as a piano, violin, or harp.
- Direct a choir, band, or orchestra in rehearsals and performances.
- Arrange vocal or instrumental music for a person or group.
- Compose background music for a movie or television show.
- Accompany a singer or singing group.
- Teach vocal or instrumental music.

The chance to give a solo performance is often reward enough for years of daily practice.

Directing a musical group requires leadership abilities as well as musical knowledge.

WORKER REQUIREMENTS

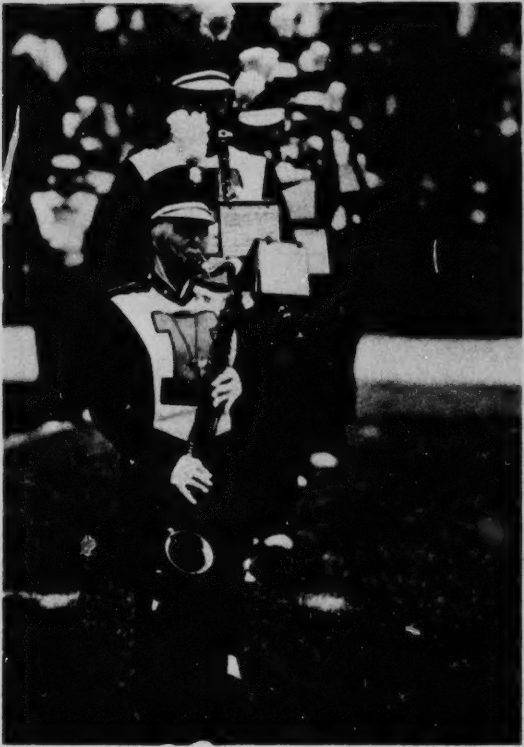
What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Spend long hours developing and perfecting your talent.
- Move the eyes, hands, and fingers skillfully to play an instrument.
- Know musical theory.
- Compose or arrange music.
- Perform before an audience with poise and self-confidence.
- Teach or direct others to improve their musical skills.

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you had lessons in singing or in playing an instrument? Did you practice regularly? Did you take part in musical recitals?
- Do you have a good ear for music? Can you tell when a singer or instrument is off-key?
- Have you sung in a school or church choir? Were you chosen for a solo?
- Have you played in a school band or orchestra? Can you read music?
- Have you composed or arranged vocal or instrumental music? Have you directed a musical group?



Playing in a school band can help you gain experience in performing before an audience.

PREPARATION

How can you prepare for and enter this kind of work?

Instrumental musicians usually start training in elementary school. They usually study during most of their working life. Hours of practice are required each day to develop and maintain musical skills. Playing in a band or orchestra provides valuable experience and training.

Vocal musicians usually start training whenever their voices mature. Taking part in school musical plays and programs or singing in a choir provides good training and experience. Vocal musicians also need to practice daily.

Such daily practice also helps these workers maintain and improve their skills in reading music.

Musical study in college, at a conservatory, or with private teachers is helpful. Formal courses include musical theory, composition, conducting, and voice or instrumental instruction. Arrangers, composers, and conductors need advanced training in these subjects. They must also have experience in performing.

Musicians depend upon their skill and experience to find employment. Teachers in schools and colleges must meet educational and licensing requirements as well.

OTHER CONSIDERATIONS

What else should you know about these jobs?

The quality of vocalists' voices may change with age. As a result, these workers often have a short working life. Sometimes, personal singing styles become outdated or unpopular.

Singers who can also dance or act are preferred for some jobs. Some employers prefer musicians who play several different instruments.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

01.04 WTG PERFORMING ARTS: MUSIC

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.
8. Activities involving creative thinking.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

3. Planning and directing an entire activity.
4. Dealing with people.
7. Making decisions using personal judgment.
9. Interpreting and expressing feelings, ideas, or facts.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Synthesizing
PEOPLE	☐	■	☐	– Diverting
THINGS	☐	☐	■	– Precision Working

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low to High 5 4 3 2 1
G – General	3 – 2 – 1
V – Verbal	3 – 2 – 1
P – Form Perception	3 – 2
Q – Clerical Perception	3 – 2
K – Motor Coordination	2
M – Manual Dexterity	2
F – Finger Dexterity	2
E – Eye-Hand-Foot Coordination	2 – 1

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **5**.

Workers in this group sing, play an instrument, arrange and compose music, or conduct or direct the efforts of other musicians. They interpret instructions presented in spoken or symbolic form. These workers deal with concrete and abstract variables such as musical instruments, and music theory and composition.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

G – Advanced college studies in directing, composing, or arranging music.
C – College studies in music.
NFT – Some occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from 2 years up to and over 10 years (SVP 7, 8, 9).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.
A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

Important Courses

- Courses required for entrance to post high school formal programs.
- Music

Helpful Courses

- Drama

OCCUPATIONS IN PERFORMING ARTS: MUSIC

Arranger	**152.067-010**
Choral Director	**152.047-010**
Conductor, Orchestra	**152.047-014**
Composer	**152.067-014**
Musician, Instrumental	**152.041-010**
Singer	**152.047-022**
Teacher, Music	**152.021-010**

PERFORMING ARTS: DANCE

Dance, as used here, includes composing, performing, or teaching rhythmic body movements. Television and movie studios, theaters, and night clubs employ workers in this group. Schools and colleges may also employ these workers.

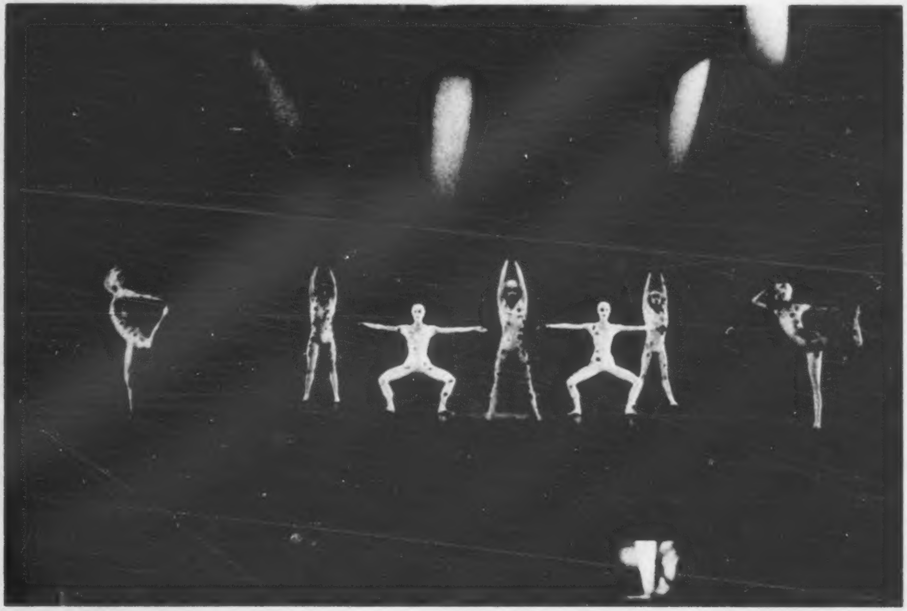
WORK PERFORMED

What would you do as a worker in this group?

You would dance alone or with a group before an audience. You would teach or direct others who dance. You would perform one or more of the following tasks.

- Dance in a chorus line in a theater or night club.
- Compose dance routines for a stage or television show.
- Perform with a ballet troupe.
- Teach dancing in a studio, a college, or high school.
- Direct dancers in a musical show.

University of Illinois Krannart Center for the Performing Arts



Dancers express their feelings and emotions through body movements.

Danish Information Office

Private dance instructors often provide daily training to young children who show signs of dancing talent.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Use active physical motions during rehearsals and performances.
- Memorize dance routines.
- Move with grace and rhythm.
- Coordinate body movements to music.
- Perform before an audience with poise and self-confidence.
- Demonstrate dance techniques to others.

01.05 WTG PERFORMING ARTS: DANCE

CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you attended dances? Can you lead or follow dance steps easily? Can you teach dance steps to others?
- Have you marched in a band? Have you been a member of a drill team? Do you have a sense of rhythm?
- Have you taken dance lessons? Have you danced in recitals or community shows? Do you enjoy this kind of activity?

Ballroom dance instructors must be able to demonstrate dance steps to others.

Do you enjoy learning new popular dance steps?

PREPARATION

How can you prepare for and enter this kind of work?

Dancers often start training at preschool age. They continue the training through most of their working lives. Hours of practice are required each day to develop and maintain dancing skills. Private dance studios usually provide the training. Elementary and high school physical education and music classes offer helpful experience.

Colleges, dance academies, and theater art schools offer two- to four-year programs. These programs include courses in the techniques, theory, and history of dance. Students also learn how to interpret and convey the meaning of a story to an audience. These programs can help students specialize in certain types of dance. Schools cooperate with professional dance companies to provide performance experiences to the students.

Competition is great for jobs in this field. Dancers depend on their skills, experience, and available jobs for employment. Dance instructors need to be able to learn and teach popular dance steps. Chorus line and theater jobs require experience and skill in different types of dancing. Training in drama or music often increases chances for employment. Ballet and modern dance companies require extensive experience and unusual talent. Choreographers compose and arrange dance movements to accompany music. These workers, as well as dance instructors, must have a lot of performing experience. Teachers in schools and colleges must meet educational and licensing requirements.

OTHER CONSIDERATIONS

What else should you know about these jobs?

The physical demands of dancing are strenuous. The working life of a professional dancer is relatively short. Related or other occupations should be selected before a dancer retires.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

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01.05 WTG PERFORMING ARTS: DANCE

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.
8. Activities involving creative thinking.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

3. Planning and directing an entire activity.
4. Dealing with people.
7. Making decisions using personal judgment.
9. Interpreting and expressing feelings, ideas, or facts.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Coordinating
PEOPLE	☐	■	☐	– Instructing
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
2. Climbing and/or balancing.
3. Stooping, kneeling, crouching, and/or crawling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low to High 5 4 3 2 1
G – General	3 – 2
S – Spatial	3 – 2
K – Motor Coordination	3 – 2
E – Eye-Hand-Foot Coordination	2 – 1

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **5.**

Workers apply logical thinking and skill in body movement to create or perform dance routines. They may interpret technical instructions presented in spoken or diagram form, or they may instruct others. These workers deal with abstract and concrete variables such as music interpretation, dance steps, and practice schedules.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occuptions in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.

A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

C – College studies in dance and choreography; dance courses at special schools.

NFT – Some occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require over 1 year up to and over 10 years (SVP 6, 7, 8, 9).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for entrance to post high school formal programs.

OCCUPATIONS IN PERFORMING ARTS: DANCE

Choreographer	**151.027-010**
Dancer	**151.047-010**
Instructor, Dancing	**151.027-014**

01.06 WTC

TECHNICAL ARTS

Technical arts include graphics, handcrafts, and product decoration. Workers in this group use materials such as wood, stone, clay, metal, and gemstones. Industries such as printing and publishing, map making, taxidermy, and jewelry employ these workers. Companies making furniture or ceramic tiles also have jobs in this group. Some workers are self-employed and sell their own products.

The Gem Lab

Handcrafting jewelry requires knowledge of gemstones and metals as well as artistic skills.

WORK PERFORMED

What would you do as a worker in this group?

You would use artistic judgment to make, repair, or decorate products. You would perform one or more of the following tasks.

- Carve designs and lettering on rollers or wooden blocks for printing.
- Paint or draw artistic lettering to be used in books, publicity, or other printed materials.
- Make or repair fine jewelry.
- Sew beads onto leather articles or clothing to form decorative designs.
- Retouch photographs to highlight features or hide blemishes.
- Prepare skins of birds, fish, or other animals to make lifelike reproductions.

A make-up artist must be able to select the proper cosmetics and techniques to produce the desired change in the performer's appearance.

Cornell University

A course in graphic arts can help you develop the skills this worker uses to retouch negatives used in printing.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Demonstrate artistic skills in one or more of the visual arts or crafts.
- Select proper tools, materials, and techniques for each task.
- Picture how shapes, forms, and colors can be arranged in an artistic way.
- Move the eyes, hands, and fingers skillfully to use brushes, pens, chisels, knives, and engraving instruments.
- Draw sketches or follow designs made by others.

CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you assembled plastic models, made pottery, or completed paint-by-number pictures? Do you have a steady hand for this kind of activity?
- Have you any craft hobbies such as jewelry making, wood carving, or leather tooling? Do you like to do this work?
- Have you taken industrial arts or other courses which give training in the use of hand tools? Can you use screwdrivers, pliers, chisels, and files skillfully?
- Have you had a mechanical drawing course? Can you draw things to scale? Do you like to do lettering?
- Have you painted or decorated unfinished furniture? Do you like this kind of work?

Illinois Natural History Survey

You can learn techniques used in taxidermy by working with a professional.

PREPARATION

How can you prepare for and enter this kind of work?

Jobs in this group require different skills. Courses in the industrial arts, drafting, or art are helpful for most of these jobs. On-the-job training and experience help develop many specific skills.

Vocational high schools and technical schools provide training in graphic arts. Some trade unions and employers offer apprenticeship training for graphic art jobs.

Hand decorating jobs usually do not require formal training before entry. Art courses, drafting, or mechanical drawing classes in high school or junior college are helpful. Most employers provide on-the-job training to teach techniques.

Handicraft hobbies help develop the skills needed for some jobs. Techniques may be self-taught or learned during short evening courses.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Many jobs in this group do not allow for creative expression. However, all workers need some artistic talent.

Highly skilled workers are sometimes self-employed. They make and sell products or do contract work for others.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

01.06 WTG TECHNICAL ARTS

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
9. Activities involving processes, methods, or machines.
10. Activities involving working on or producing things.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	■	☐	– Compiling
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	☐	☐	■	– Precision Working

PHYSICAL DEMANDS

Workers must be able to perform the following physical activities.

S Sedentary work.
L Light work.
4. Reaching, handling, fingering, and/or feeling.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes			**Levels**		
	Low		to		High
	5	4	3	2	1
G – General			3		
S – Spatial			3 – 2		
P – Form Perception			3 – 2		
K – Motor Coordination			3		
F – Finger Dexterity			3 – 2		
M – Manual Dexterity			3		
C – Color Discrimination			3		

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **4 - 5.**

Workers apply judgment and manual skills to make or decorate products for practical or artistic purposes. They follow instructions which are written, spoken, or in diagram form. These workers deal with concrete and abstract variables such as special hand tools, artistic mediums, and aesthetic expression.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.
A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

T – Technical school courses in drafting.
V – Vocational school courses in the trade and industrial fields.

Training Time

Occupations in this group may require over 1 year up to and including 10 years (SVP 6, 7, 8).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Manufacturing or Communications in industrial arts.

OCCUPATIONS IN TECHNICAL ARTS

Airbrush Artist	970.281-010
Art Conservator	102.167-010
Carver, Hand	761.281-010
Decorator	298.381-010
Decorator	524.381-014
Engraver, Hand, Soft Metals	704.381-030
Etcher	704.684-010
Etcher, Photoengraving	971.381-014
Form Designer	970.361-010
Glass Bender	772.381-010
Jeweler	700.281-010
Letterer	970.661-014
Lithographic Plate Maker	972.381-010
Milliner	784.261-010
Model Maker	709.381-018
Museum Technician	102.381-010
Painter, Hand	970.381-022
Painter, Sign	970.381-026
Photoengraver	971.381-022
Photoengraving Finisher	971.381-030
Photoengraving Printer	971.381-034
Photographer, Aerial	143.062-014
Photographer, Lithographic	972.382-014
Photographer, Photoengraving	971.382-014
Photograph Retoucher	970.281-018
Picture Framer	739.684-146
Process Artist	972.281-010
Sign Writer, Hand	970.281-022
Silversmith	700.281-022
Sound Cutter	962.382-014
Stripper	971.381-050
Taxidermist	199.261-010
Transferrer	972.381-026
Wig Dresser	332.361-010

AMUSEMENT

Amusement, as used here, includes performing an act to entertain people in a setting such as a carnival. Workers attract people's attention by shouting, gestering, or wearing a costume. Carnivals, street fairs, and amusement parks often employ these workers.

WORK PERFORMED

What would you do as a worker in this group?

You would put on an act in front of an audience. You would perform one or more of the following tasks.

- Prepare and interpret horoscopes for people.
- Announce circus acts.
- Drive a sound truck and operate a public address system to announce or advertise events or products.
- Use props to give a fire-eating performance.
- Shout at passersby to get them to enter a carnival attraction.

As a psychic reader, you would use a crystal ball, playing cards, or read people's palms to predict the future.

Circus World Museum, Baraboo, Wisconsin

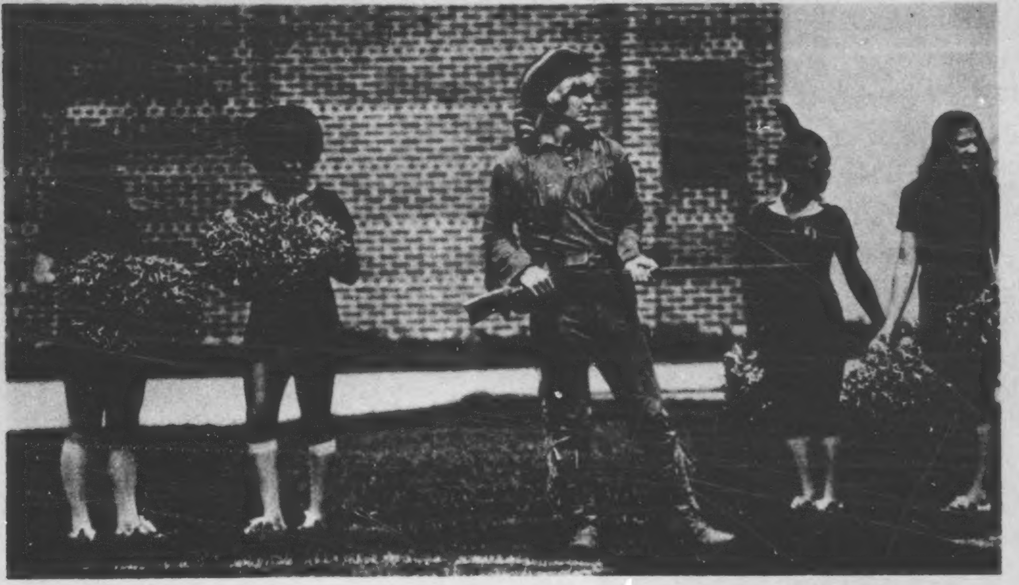
Poise and concentration help this amusement park entertainer hold the audience's attention.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Speak clearly.
- Get the attention of others to entertain them through speaking, gesturing, or shouting.
- Be at ease before an audience.
- Learn the principles of fortune-telling or mind reading.



Would you feel at ease wearing a costume in front of strangers?

CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you read or prepared horoscopes for your friends or at a party? Are you interested in this type of activity?
- Have you worn a costume as a school mascot? Do you enjoy performing before an audience?
- Have you worked at a school or community fair or carnival? Were you able to get people to play the games or watch the shows?

PREPARATION

How can you prepare for and enter this type of work?

Many of these jobs require only a short period of on-the-job training. Some jobs require no preparation other than to be fitted for a costume. Jobs such as ring conductor are only open to workers with related work experience.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Many of these jobs are seasonal or temporary. There are few promotions. Jobs in circuses and other shows often require frequent travel. Some jobs, such as fortune-telling, require workers to have their own places of business.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

Most jobs in this group are seasonal or temporary.

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WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
6. Activities involving the communication of ideas and information.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

4. Dealing with people.
5. Influencing people's opinions, attitudes, and judgments.
7. Making decisions using personal judgment.
9. Interpreting and expressing feelings, ideas, or facts.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	■	☐	– Compiling
PEOPLE	☐	■	☐	– Diverting
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
L Light work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.
O Outside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low 5	4	to 3	2	High 1
G – General			3		
V – Verbal			3		

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **4 - 5.**

Workers apply personal judgment and special skills to entertain by talking to or performing before people. These workers may carry out instructions furnished in written, spoken, or diagram form. They may deal with problems primarily involving abstract variables such as announcing or impersonating.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter most occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

NFT – Most occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from 1 day up to and including 6 months (SVP 2, 3, 4).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

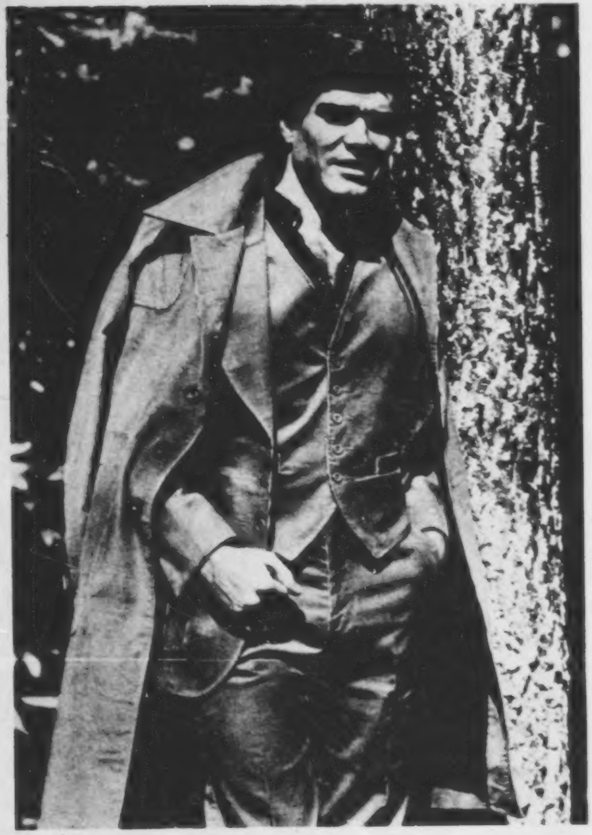
- Speech, Drama.

OCCUPATIONS IN AMUSEMENT

Announcer	**159.347-010**
Astrologer	**159.207-010**
Psychic Reader	**159.647-018**
Ring Conductor	**159.367-010**
Stand-In	**961.667-014**

MODELING

Men's Fashion Association of America



Workers may model heavy clothes on a hot day since fashion designers present their fall-winter collections in the summer.

Modeling involves appearing before a camera or an audience with no speaking assignment. Workers show how clothes and jewelry look when worn, stand in for movie performers, and pose for artists. Stores, motion picture studios, and artists' and photographers' studios employ these workers.

WORK PERFORMED

What would you do as a worker in this group?

You would pose or move as directed by your employer. You would perfrom one or more of the following tasks.

- Model clothes for a designer or a store.
- Pose for an artist or photographer.
- Stand in for a movie performer for camera and light adjustments.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Stand, sit, walk, or pose in front of an audience, photographer, or artist for long periods of time.
- Move eyes, hands, feet, and body together gracefully.
- Follow directions for movements and poses.
- Appear before an audience with poise.

Monsanto

Could you still walk gracefully toward the end of a long modeling session?

The artist may ask you to stay in the same position for a long period of time.

CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you modeled for an artist or photographer? Can you hold a pose for a half-hour or longer?
- Have you modeled clothes in a fashion show? Do you enjoy appearing before groups?

PREPARATION

How can you prepare for and enter this type of work?

Training in this field is usually brief and given on the job. A worker may be hired because of appearance or size. Workers may be under contract with a booking agency. Others may obtain work on their own. Models may work only part-time until the quality of their work is recognized. They often hold other jobs until they obtain full-time schedules.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Many of these jobs are short-term or seasonal. There are few chances to advance. However, a few models are in constant demand and earn large salaries.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

3. Activities of routine, definite, organized nature.
6. Activities involving the communication of ideas and information.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

4. Dealing with people.
9. Interpreting and expressing feelings, ideas, or facts.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	■	☐	☐	– Comparing
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.
B Both: inside and outside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low to High 5 4 3 2 1
G – General	4 – 3
K – Motor Coordination	4 – 3
M – Manual Dexterity	4 – 3

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **3-4.**

Workers use personal judgment to carry out instructions required for posing and modeling. They deal with concrete variables and standard situations such as props, costumes, or working schedules.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter most occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

T – Post-high school courses in modeling.

NFT – Most occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from 1 day up to and including 6 months (SVP 2, 3, 4).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

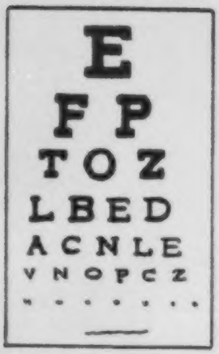
- Courses required for completion of high school.

OCCUPATIONS IN MODELING

Instructor, Modeling	099.227-026
Model	297.667-014
Model, Artists'	961.667-010
Model, Photographers'	961.367-010

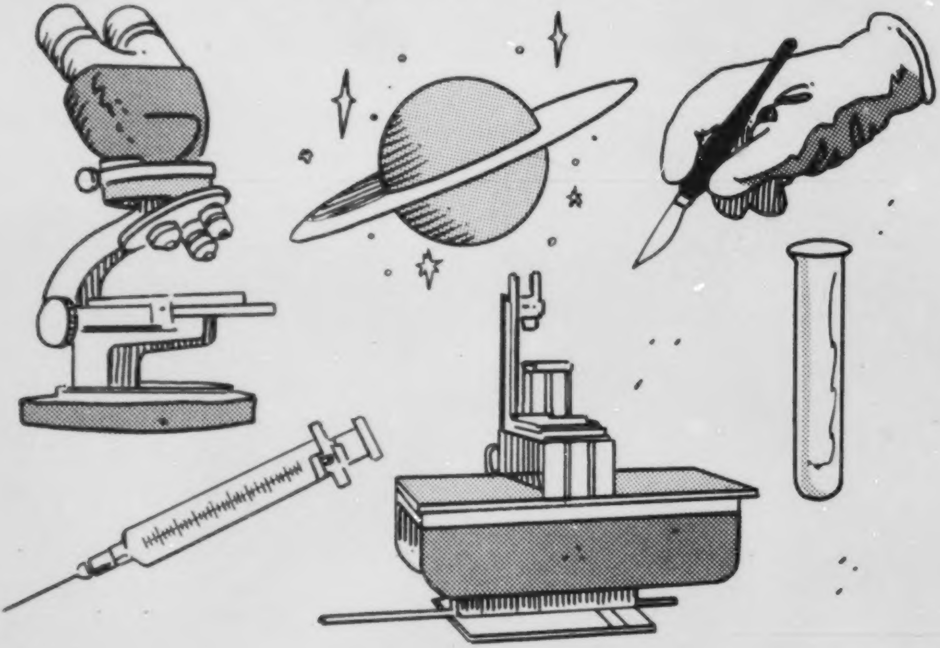
02.

SCIENTIFIC


E
F P
T O Z
L B E D
A C N L E
V N O P C Z

This is an interest in researching and collecting data about the natural world and applying them to problems in medical, life, or physical sciences.

You can satisfy this interest by working with the knowledge and processes involved in the sciences. You may enjoy to research and develop new knowledge in mathematics. Perhaps solving problems in the physical or life sciences would satisfy you. You may prefer to study medicine and help humans or animals. You could work as a practitioner in the health field. You may want to work with scientific equipment and procedures. You could seek a job in research or testing laboratories.



physical sciences

Physical sciences are based on mathematics, physics, and chemistry. Workers in this group research, discover, and test new theories. Some workers research new or improved materials or processes for production and construction. Other workers research such fields as geology, astronomy, oceanography, and computer science. All of the workers' conclusions are based on data that can be measured or proved. Industries, government agencies, or large universities employ most of these workers in their research facilities.

The University of Michigan

Research chemists conduct many tests before reaching a conclusion.

WORK PERFORMED

What would you do as a worker in this group?

You would conduct scientific studies using your knowledge of math, physics, and chemistry. Your work activities would depend on what you want to find out through your studies. You would perform one or more of the following tasks.

- Study the composition and history of the earth's crust.
- Study the earth's atmosphere and its influences on humanity's comfort and well-being.
- Study the stars and planets and their relationship to earth.
- Help solve the problems of air pollution.
- Work on problems related to flights into space.
- Do research to develop or improve materials or products.
- Study the properties and uses of nuclear energy, electrical energy, or sound.
- Develop new ways to apply math concepts.

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University of Illinois Planetarium

Astronomers chart the movements of stars and planets to study their effect on earth.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this type of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Understand and apply concepts in math and science.
- Read and use formulas, tables, charts, and graphs dealing with chemistry and math.
- Understand and express complex, technical, and scientific information.
- Determine differences in textures, colors, and shapes of objects.
- Form a mental image of fixed or moving objects in three dimensions and how they relate to each other in space.

02.01 WTG physical sciences

CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you belonged to a science club? Have you taken part in a science fair?
- Do you like science or math courses? Do you do well in these areas?
- Have you taken part in a research project or field trip which involved math or geology?
- Have you collected rocks or minerals as a hobby? Can you recognize differences in ore or mineral deposits?
- Have you owned a chemistry set or microscope? Do you enjoy testing new ideas with the equipment?
- Are you interested in such problems as air and water pollution? Would you like to help solve these problems?

A. Collecting rocks.

B. Experimenting with chemicals.

C. Reading scientific materials.

Do you have similar leisure activities?

PREPARATION

How can you prepare for and enter this kind of work?

Workers need at least a bachelor's degree with a major in math or a specific physical science to enter this type of work. However, graduate degrees are needed for most research work or college teaching. A master's degree may qualify a person to work in applied research or education. A doctoral degree and advanced studies are usually required to work in basic research.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Some workers in this group may work irregular hours. They may have to meet research deadlines or observe events in nature whenever they occur. Workers may be outside for long periods of time. They may relocate or travel to remote areas such as excavation sites or near volcano craters. Workers must keep informed of developments in their field. During their leisure time, they often attend seminars and read professional journals.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
6. Activities involving the communication of ideas and information.
7. Activities of a scientific and technical nature.
8. Activities involving creative thinking.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Synthesizing
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	☐	☐	■	– Setting-Up

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
4. Reaching, handling, fingering, and/or feeling.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.
B Both: inside and outside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	**Levels**				
	Low		to		High
	5	4	3	2	1
G – General					1
V – Verbal					1
N – Numerical				2 –	1
S – Spatial				2	
P – Form Perception			3		
Q – Clerical Perception			3		
C – Color Discrimination			3		

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **5-6.**

Workers apply logical thinking and scientific methods to develop theories and principles based on complex mathematical or scientific information. They interpret and use technical formulas, equations, and graphs involved in mathematics and physical sciences. These workers deal with abstract and concrete variables such as trigonometry, geology, and measuring instruments.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

G – Graduate degrees in the science specialty.

physical sciences WTG 02.01

Training Time

Occupations in this group may require from over 4 years up to and over 10 years (SVP 8, 9).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

Important Courses

- Courses required for entrance to post high school formal programs.
- Algebra/Geometry, Advanced Math, Physics, Earth/Space Sciences.

Helpful Courses

- Chemistry, Composition.

OCCUPATIONS IN PHYSICAL SCIENCES

Astronomer	021.067-010	**Mathematician**	020.067-014
Chemist	022.061-010	**Metallurgist, Physical**	011.061-022
Computer - Applications Engineer	020.062-010	**Meteorologist**	025.062-010
Environmental Analyst	029.081-010	**Mineralogist**	024.061-038
Geodesist	024.061-014	**Petrologist**	024.061-046
Geographer	029.067-010	**Physicist**	023.061-014
Geographer, Physical	029.067-014	**Physicist, Theoretical**	023.067-010
Geologist	024.061-018	**Project Manager, Environmental Research**	029.167-014
Geophysical Prospector	024.061-026	**Seismologist**	024.061-050
Geophysicist	024.061-030	**Stratigrapher**	024.061-054
Hydrologist	024.061-034		

02.02 WTG

LIFE SCIENCES

Life sciences are the studies of plants and animals. Workers in this group conduct research and experiments to expand knowledge about living organisms. Workers may try to solve problems related to the effects of the environment on plant and animal life. They may study causes of diseases and methods of control. Hospitals, government agencies, industries, or universities usually employ these workers in their research facilities.

WORK PERFORMED

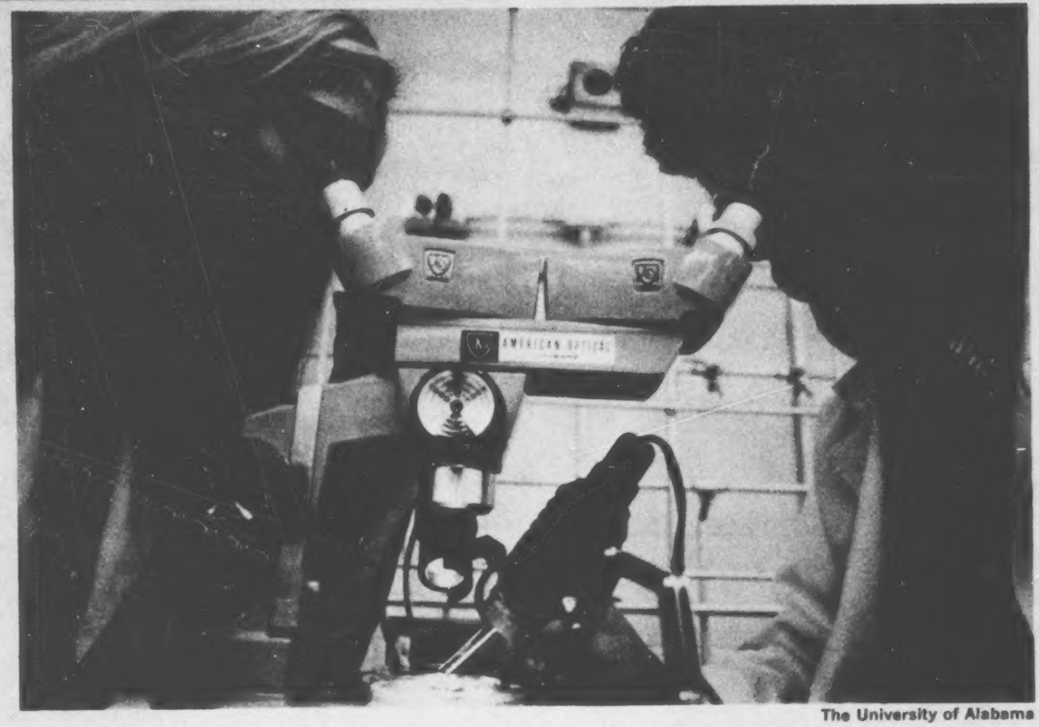
What would you do as a worker in this group?

You would perform research and experiments to study and try to solve problems affecting plants and animals. There are many fields within the life sciences in which you can specialize. You would perform one or more of the following tasks.

- Study the climate, soil conditions, and other factors affecting forests.
- Conduct research related to food processing and nutrition.
- Experiment to develop new and improved trees and other plants.
- Study the effects of drugs, gases, and other materials on plants and animals.
- Stain, mount, and study human cells to determine whether they are diseased.
- Study the functions of the brain and nervous system of animals.

U. S. Department of Agriculture

Soil scientists wear masks for protection as they research the best way to remove radioactivity from the field.



The University of Alabama

These toxicologists look for possible effects of chemicals on the tissue of laboratory animals.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this type of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- See differences in form and structure to distinguish one organism from another.
- Move eyes, hands, and fingers together to handle sensitive or delicate instruments.
- See differences in shades of colors.
- Use concepts in mathematics and statistics.
- Understand and report technical and scientific data.
- Do a variety of tasks that may change often.
- Supervise other workers.

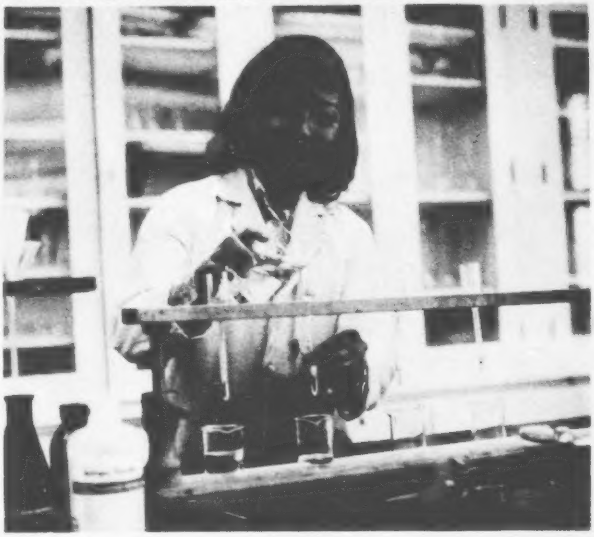
CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you had courses in biology, botany, or zoology? Did you like performing experiments to learn more about plants or animals?
- Have you taken part in a science project in which you raised, cared for, or studied differences among various kinds of plants?
- Have you belonged to a nature club? Do you enjoy walking along nature trails to observe plants and wildlife?
- Have you belonged to a scout troop? Did you take part in efforts to clean up or preserve forests, parks, or campgrounds?
- Have you worked in a plant nursery or in an animal clinic?

Clemson University

Students overcome their sensitivity as they observe the instructor dissect the lab animal.



This food chemist uses the experience and knowledge gained in college to research new food preservation methods.

PREPARATION

How can you prepare for and enter this kind of work?

A bachelor's degree with a major in biology or another life science is generally required to enter this type of work. However, graduate degrees are needed for most research work or for college teaching. A master's degree may qualify a person to work in applied research or education. A doctoral degree and advanced studies are usually required to work in basic research.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Some jobs require workers to study tissue and waste products of humans and animals. Others require workers to live or work in remote areas such as forests or deserts.

Workers must keep informed of developments in their field. During their leisure time, they often attend seminars and read professional journals.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

02.02 WTC LIFE SCIENCES

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
6. Activities involving the communication of ideas and information.
7. Activities of a scientific and technical nature.
8. Activities involving creative thinking.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Synthesizing
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	☐	☐	■	– Precision Working

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
4. Reaching, handling, fingering, and/or feeling.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.
B Both: inside and outside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	**Levels**
	Low to High
	5 4 3 2 1
G – General	1
V – Verbal	2 – 1
N – Numerical	2 – 1
S – Spatial	3 – 2 – 1
P – Form Perception	3 – 2 – 1
F – Finger Dexterity	3 – 2
M – Manual Dexterity	3
C – Color Discrimination	3

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **5-6.**

Workers apply logical thinking and scientific knowledge to study living things. They interpret technical instructions presented in written, mathematical, or diagram form. These workers deal with abstract and concrete variables such as life processes, classification of plants and animals, and laboratory equipment.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

G – Graduate degrees in the science specialty.

Training Time

Occupations in this group may require from over 4 years up to and over 10 years (SVP 8, 9).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

Important Courses

- Courses required for entrance to post high school formal programs.
- Algebra/Geometry, Advanced Math, Chemistry, Biological Sciences.

Helpful Courses

- Composition.

OCCUPATIONS IN LIFE SCIENCES

Agronomist	040.061-010
Anatomist	041.061-010
Animal Scientist	040.061-014
Anthropologist, Physical	055.067-014
Aquatic Biologist	041.061-022
Biochemist	041.061-026
Biologist	041.061-030
Biomedical Engineer	019.061-010
Biophysicist	041.061-034
Botanist	041.061-038
Chemist, Food	022.061-014
Dairy Technologist	040.061-022
Dietitian, Research	077.061-010
Entomologist	041.061-046
Food Technologist	041.081-010
Geneticist	041.061-050
Histopathologist	041.061-054
Horticulturist	040.061-038
Microbiologist	041.061-058
Mycologist	041.061-062
Parasitologist	041.061-070
Pathologist	070.061-010
Pharmacologist	041.061-074
Physiologist	041.061-078
Plant Pathologist	041.061-086
Range Manager	040.061-046
Soil Conservationist	040.061-054
Soil Scientist	040.061-058
Veterinary Anatomist	073.061-014
Wood Technologist	040.061-062
Zoologist	041.061-090

02.03 WTC

MEDICAL SCIENCES

Medical sciences involve the prevention, diagnosis, and treatment of human and animal diseases, disorders, or injuries. Some workers in this group specialize in treating specific kinds of illnesses or areas of the body. Doctors, dentists, veterinarians, and other health workers usually work in hospitals or clinics.

WORK PERFORMED

What would you do as a worker in this group?

You would prevent, diagnose, or treat the illnesses or injuries of human or animal patients. Your work activities would depend on your training. You would perform one or more of the following tasks.

- Practice general medicine and treat many types of ailments.
- Specialize in treating only one part of the body or only certain types of diseases.
- Provide general dental care or specialize in one area of dentistry.
- Examine eyes and prescribe glasses or contact lenses to improve vision.
- Diagnose and treat disorders of the ear, nose, and throat.
- Perform surgery to correct deformities, repair injuries, or remove diseased organs.
- Care for women during pregnancy and deliver babies.
- Prevent and treat illnesses and injuries of pets or livestock.

American Veterinary Medical Association

Often, the same procedures are used to diagnose and treat both humans and animals.

U. S. Army

Surgical staff workers use delicate instruments with precision and skill and must remain calm in emergencies.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this type of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Understand human or animal anatomy.
- Stay calm and clearheaded in emergency situations.
- Care for the physical welfare of people or animals.
- Concentrate and remain alert for long periods.
- Make critical decisions and judgments.
- Move eyes, hands, and fingers together to use surgical instruments with precision and skill.

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American Veterinary Medical Association

The workers' long training may range from studying animal bone structure to diagnosing health problems from Xrays.

CLUES

Do you have or can you develop these skills, abilities, and interests?
Your answers to the following questions will help you decide.

- Have you taken courses in biology, anatomy, or chemistry? Have you done well in your science courses?
- Have you had any training in first aid techniques? Have you treated an accident victim? Are you calm during emergencies?
- Have you done volunteer work in a hospital? Have you had a part-time job as a nurses' aid or an orderly? Do you enjoy such work?
- Have you assembled a plastic model of a human or animal? Are you interested in how internal body structures or systems work?
- Have you cared for a sick or injured animal?
- Have you watched shows presenting medical facts on television? Do you enjoy such programs?

PREPARATION

How can you prepare for and enter this kind of work?

Doctors of medicine, veterinary medicine, and dentistry need to have the following minimum preparation. They must study two to four years in a premedical, predental, or other professional college. These years are then followed by four years of advanced study. Most doctors serve one to two years as interns in approved hospitals after they graduate from medical school.

Some physicians specialize in a specific field. To do so, they spend several more years in study and training as residents or interns. Some dentists specialize, teach, or perform research in specific fields. To do so, they take postgraduate courses or serve as residents in a hospital. All states require medical doctors, dentists, and veterinarians to have a license to practice.

OTHER CONSIDERATIONS

What else should you know about these jobs?

The training needed to enter this type of work is costly in time and money. Workers must adjust to irregular hours, weekend and holiday work, and 24-hour on call duties. However, pay in most of these jobs is in the upper levels.

Workers must update their knowledge and skills. They must attend seminars, take advanced courses, and read journals related to their professions.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

4. Activities involving direct personal contact to help or instruct others.
5. Activities resulting in recognition or appreciation from others.
7. Activities of a scientific and technical nature.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

4. Dealing with people.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Coordinating
PEOPLE	☐	☐	■	– Mentoring
THINGS	☐	☐	■	– Precision Working

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels				
	Low		to		High
	5	4	3	2	1
G – General					1
V – Verbal				2 – 1	
N – Numerical				2 – 1	
S – Spatial				2 – 1	
P – Form Perception				2 – 1	
K – Motor Coordination			3 – 2		
F – Finger Dexterity				2 – 1	
C – Color Discrimination			3		

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **5-6.**

Workers apply logical thinking and scientific knowledge to prevent, diagnose, and treat animal or human injuries or illnesses. They interpret technical instructions presented in written, mathematical, or diagram form. These workers deal with abstract and concrete variables such as symptoms of disease, body processes, diagnostic aids, and surgical instruments.

MEDICAL SCIENCES WTG 02.03

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

G – Graduate degree in one of the medical sciences.

Training Time

Occupations in this group may require from over 4 years up to and over 10 years (SVP 8, 9).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for entrance to post high school formal programs.
- Algebra/Geometry, Advanced Math, Chemistry, Biological Sciences.

OCCUPATIONS IN MEDICAL SCIENCES

Anesthesiologist	070.101-010
Audiologist	076.101-010
Chiropractor	079.101-010
Dentist	072.101-010
Dermatologist	070.101-018
General Practitioner	070.101-022
Gynecologist	070.101-034
Intern	070.101-038
Internist	070.101-042
Medical Officer	070.101-046
Obstetrician	070.101-054
Ophthalmologist	070.101-058
Optometrist	079.101-018
Oral Pathologist	072.061-010
Oral Surgeon	072.101-018
Orthodontist	072.101-022
Osteopathic Physician	071.101-010
Pediatrician	070.101-066
Pedodontist	072.101-026
Periodontist	072.101-030
Physiatrist	070.101-070
Physician, Head	070.101-074
Physician, Occupational	070.101-078
Podiatrist	079.101-022
Prosthodontist	072.101-034
Psychiatrist	070.107-014
Radiologist	070.101-090
Speech Pathologist	076.107-010
Surgeon 1	070.101-094
Urologist	070.101-098
Veterinarian	073.101-010
Veterinary Meat-Inspector	073.264-010

LABORATORY TECHNOLOGY

Laboratory technology involves using special equipment to perform tests in chemistry, biology, or physics. Workers in this group record data obtained from experiments and tests. They help scientists, researchers, and engineers in their work. Hospitals, government agencies, universities, and private industries employ these workers in their research labs.

Goodyear Tire and Rubber Co.

The accuracy of both medical and industrial laboratory technologists can affect the life or death of a patient or a consumer.

WORK PERFORMED

What would you do as a worker in this group?

You would set up and operate testing equipment. You would usually gather samples of materials to be tested.

You would perform one or more of the following tasks.

- Test blood, tissue, or other samples to help in the diagnosis and treatment of diseases.
- Analyze samples of water to check the chemical content or purity.
- Test ore samples to estimate the value of precious metals.
- Measure rainfall and river flow at metering stations.
- Test petroleum products or synthetic fibers to find out if they meet quality standards.
- Test aircraft materials to measure strength and hardness.
- Analyze mud to determine the presence of oil or gas.

Laboratory technology

WTG 02.04

Would you like to learn how to plot a weather chart?

Delta Air Lines

Laboratory technologists use the experience gained in handling basic testing instruments to operate special equipment with precision and skill.

Diamond Shamrock

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this type of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing the following items. Not all items are important to every job.

- Understand and use scientific and technical language and symbols.
- See slight differences in form or texture of substances being tested.
- Move hands and fingers together to operate testing equipment and use delicate instruments.
- Recognize color shadings that might indicate tissue condition or the presence of minerals in ore samples.
- Make and use graphs, charts, and maps to record data.

02.04 WTG laboratory technology

American Textiles Manufacturers Institute, Inc.

A high school chemistry course can help you explore or confirm your interest and skills in laboratory work.

CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you used test tubes, microscopes, or other testing instruments? Do you enjoy working with such equipment?
- Do you like to read scientific or technical manuals or journals? Can you understand the language and symbols used?
- Have you collected rocks? Could you recognize the different minerals present in the rocks?
- Have you had algebra or geometry courses? Do you like your math classes? Can you read and understand charts and graphs?

PREPARATION

How can you prepare for and enter this kind of work?

Most of these jobs require workers to have a two- to four-year degree from a vocational or technical school. Some junior colleges and universities also offer the needed scientific and technical courses. Some workers in production may move into testing if their skills and interests show an aptitude for this type of work. Workers with related work experience may sometimes obtain on-the-job training. Applicants who had scientific or technical courses in high school may obtain some of these jobs.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Many medical and technical facilities operate on a 24-hour schedule. Workers may have to work at night or at different hours from week to week.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
7. Activities of a scientific and technical nature.
9. Activities involving processes, methods, or machines.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Analyzing
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	☐	☐	■	– Precision Working

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

02.04 WTC LABORATORY TECHNOLOGY

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low to High 5 4 3 2 1
G – General	3 – 2
N – Numerical	3 – 2
S – Spatial	3
P – Form Perception	3 – 2
Q – Clerical Perception	4 – 3
K – Motor Coordination	3
F – Finger Dexterity	3
M – Manual Dexterity	3
C – Color Discrimination	3

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **4 - 5.**

Workers apply logical thinking and scientific knowledge to perform precise tests and operate laboratory equipment and machines in order to solve scientific problems. They interpret technical instructions presented in written, oral, diagram, or schedule form. These workers deal with abstract and concrete variables such as laboratory equipment and procedures and quality control.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.
A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

C – College courses in science.
T – Technical school courses in laboratory technology.
NFT – Some occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 1 year up to and including 10 years (SVP 6, 7, 8).

LABORATORY TECHNOLOGY WTC 02.04

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

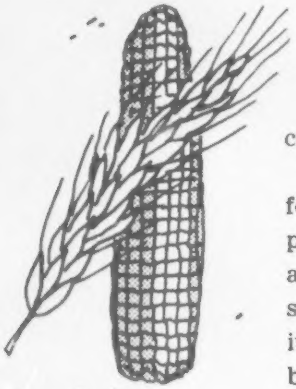
- Courses required for entrance to post high school formal programs.
- Science courses related to the laboratory specialty.

OCCUPATIONS IN LABORATORY TECHNOLOGY

Assayer	022.281-010
Biological Aide	049.384-010
Cephalometric Analyst	078.384-010
Chemical-Laboratory Technician	022.261-010
Chemistry Technologist	078.261-010
Colorist	022.161-014
Criminalist	029.281-010
Cytotechnologist	078.281-010
Decontaminator	199.384-010
Embalmer	338.371-014
Film Laboratory Technician 1	976.381-010
Fingerprint Classifier	375.387-010
Food Tester	029.361-014
Laboratory Supervisor	022.137-010
Laboratory Tester	022.281-018
Laboratory Tester	029.261-010
Medical-Laboratory Assistant	078.381-010
Medical-Laboratory Technician	078.381-014
Medical Technologist	078.361-014
Medical Technologist, Chief	078.161-010
Metallurgical Technician	011.261-010
Morgue Attendant	355.667-010
Pharmacist	074.161-010
Photographer, Scientific	143.062-026
Pilot-Control Operator	559.382-046
Quality-Control Technician	012.261-014
Scientific Helper	199.364-014
Tester	011.361-010
Tester	029.261-022
Tissue Technologist	078.361-030
Ultrasound Technologist	078.364-010
Weather Observer	025.267-014

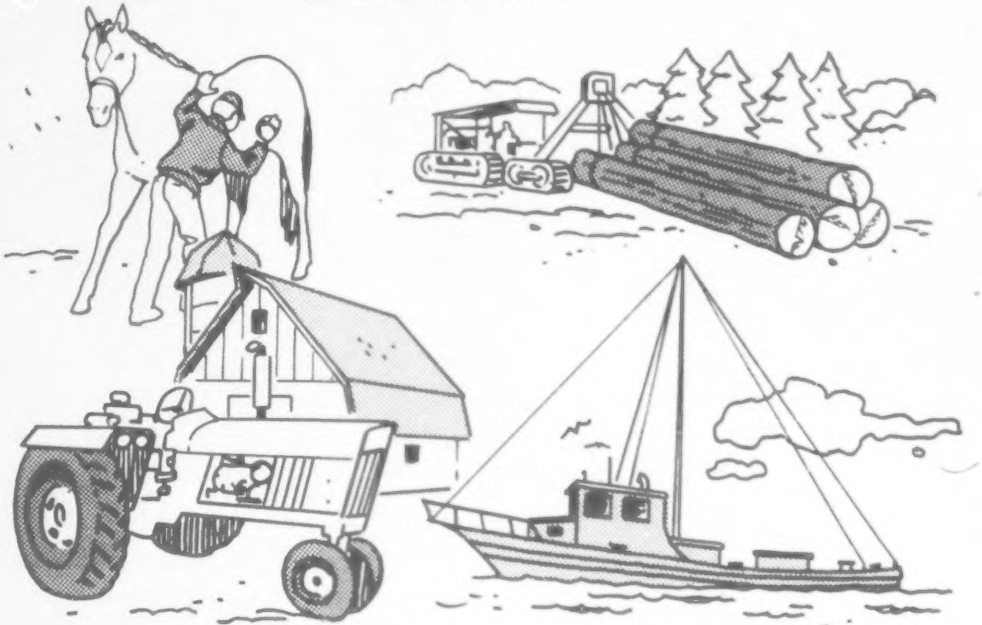
03.

NATURE



This is an interest in activities involving the physical care of plants and animals, usually in an outdoor setting.

You can satisfy this interest by working in farming, forestry, fishing, and related fields. You may like doing physical work outdoors, working on a farm. You may enjoy animals. Perhaps training or taking care of animals would satisfy you. You may prefer to use your management abilities. You could own, operate, or manage farms or related businesses or services.



MANAGERIAL WORK: NATURE

Managerial work: nature is the managing and directing of work in farming, logging, or forestry. It includes fish and animal breeding, landscaping, and ranching. Some workers in this group own and operate their own farms or related businesses. Private owners, large companies, and the government also employ workers in this group. Managers often do physical work with the people they direct. Job settings include farms, ranches, landscape nurseries, fish hatcheries, and forests.

Landscape contractors plan and execute landscaping operations of private and business residences.

WORK PERFORMED

What would you do as a worker in this group?

You would manage a landscaping or lumbering firm, farm, fish hatchery, nursery, ranch, park, or forest. You would hire and supervise other workers or do the work yourself.

You would perform one or more of the following tasks.

- Plan and oversee the buying of seed, livestock, feed, fertilizer, and other supplies.
- Plan and oversee the sale and shipment of crops, poultry, livestock, fish, or timber.
- Develop a system to keep financial and production records.
- Arrange contracts with logging companies to harvest timber.
- Supervise the workers in a large government forest or park.
- Plan and arrange for the purchase of equipment and machinery.
- Raise poultry, shellfish, game birds, reptiles, fur bearing animals or grow Christmas trees.

This nursery manager checks the stock to determine which plants are ready for sale.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this type of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Work outdoors.
- Work with plants and animals.
- Keep financial and production records.
- Deal with people in an effective manner when hiring, supervising, purchasing, or contracting for the sale of products.
- Know your specific field of work thoroughly.
- Have physical stamina.
- Work with your hands.

CLUES

Do you have or can you develop these skills, abilities, and interests?
Your answers to the following questions will help you decide.

- Have you taken care of plants or animals as a hobby? Would you like to learn more about growing plants or raising animals?
- Have you been a member of Future Farmers of America or 4-H? Were you involved in projects which required you to keep records? Do you enjoy record keeping?
- Have you fished or camped as a hobby? Do you like outdoor activities?
- Have you been a club leader or chaired a committee? How do you feel about being responsible for the work of others?
- Have you done any part-time or full-time work on a farm, fishing boat, or for a nursery or lawn care company? Would you like to operate this kind of business?

U. S. Department of Agriculture

U. S. Forest Service

Managers in this group must be able to do the actual work as well as train others to do it.

PREPARATION

How can you prepare for and enter this kind of work?

Most of the jobs in this group are open only to people with related work experience. Growing up on a farm may often help prepare workers for many of these jobs. Formal training is offered at the high school and college levels. Many high schools offer vocational courses in agriculture. Adults may attend similar courses at night or on weekends. Many colleges and technical schools offer programs in agribusiness, animal husbandry, and forest management. They may also provide courses in small business management. Each state has at least one college which offers four- and five-year programs in related fields.

Courses in plant growing, gardening, or turf management prepare workers for jobs in nurseries, tree services, and landscaping firms.

Group-run farm businesses, big companies, and large farm owners hire workers with management training and farm experience. Some of these workers form contracting companies which provide farm services or purchase farm products.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Jobs in farm management are found in all parts of the country. However, the climate and the land dictate the location of jobs related to special crops, such as citrus fruits or cotton. The timber producing areas of the Pacific Northwest and the South provide most of the forestry and lumbering jobs. States which stock lakes and streams for fishing provide a few jobs in fish hatchery management. Jobs with plant nurseries, landscaping companies, and tree service firms are usually found in city and suburban areas.

Federal loans are sometimes offered to qualified people who wish to start a farm or forestry service business. However, these people should first be certain that this type of service is needed in the area. Few firms hire people in animal breeding, beekeeping, or fish farming. Workers can start these businesses at home with personal financial investment.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
2. Activities involving business contact.
7. Activities of a scientific and technical nature.
9. Activities involving processes, methods, or machines.
10. Activities involving working on or producing things.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
3. Planning and directing an entire activity.
4. Dealing with people.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Coordinating
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	☐	☐	■	– Precision Working

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
M Medium work.
3. Stooping, kneeling, crouching, and/or crawling.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

O Outside.
B Both: inside and outside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low to High 5 4 3 2 1
G – General	3 – 2
V – Verbal	3
N – Numerical	3
S – Spatial	4 – 3
Q – Clerical Perception	4 – 3

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **5**.

Workers apply scientific knowledge of efficient agricultural methods to solve practical problems in farming, animal breeding, or forestry. They interpret instructions presented in mathematical or diagram form. These workers deal with concrete and abstract variables such as business records, land management, and timber operations.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

C – College studies in agriculture, forestry or business management.
T – Technical school courses in agriculture or business management.
V – Vocational courses in agriculture.

Training Time

Occupations in this group may require from over 1 year up to and including 10 years (SVP 6, 7, 8).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for entrance to post high school formal programs.
- Basic Math, Language Skills.

OCCUPATIONS IN MANAGERIAL WORK: NATURE

Animal Breeder	**410.161-010**
Beekeeper	**413.161-010**
Cruiser	**459.378-010**
Farmer, Cash Grain	**401.161-010**
Farmer, Diversified Crops	**407.161-010**
Farmer, Field Crop	**404.161-010**
Farmer, General	**421.161-010**
Farmer, Tree-Fruit-and-Nut Crops	**403.161-010**
Farmer, Vegetable	**402.161-010**
Field Contractor	**162.117-022**
Fish Farmer	**446.161-010**
Forester	**040.061-034**
Forester Aide	**452.364-010**
Fur Farmer	**410.161-014**
Game-Bird Farmer	**412.161-010**
General Manager, Farm	**180.167-018**
Horticultural-Specialty Grower, Field	**405.161-014**
Landscape Contractor	**182.167-014**
Landscape Gardener	**408.161-010**
Livestock Rancher	**410.161-018**
Manager, Dairy Farm	**180.167-026**
Manager, Fish Hatchery	**180.167-030**
Manager, Nursery	**180.167-042**
Poultry Farmer	**411.161-018**
Superintendent, Production	**180.167-058**
Tree Surgeon	**408.181-010**
Wildlife Control Agent	**379.267-010**

GENERAL SUPERVISION: NATURE

General supervision: nature is overseeing several kinds of work in farming, fishing, or forestry. Workers in this group usually work under a general manager. Job settings include farms, ranches, landscape nurseries, fish hatcheries, forests, and fishing boats.

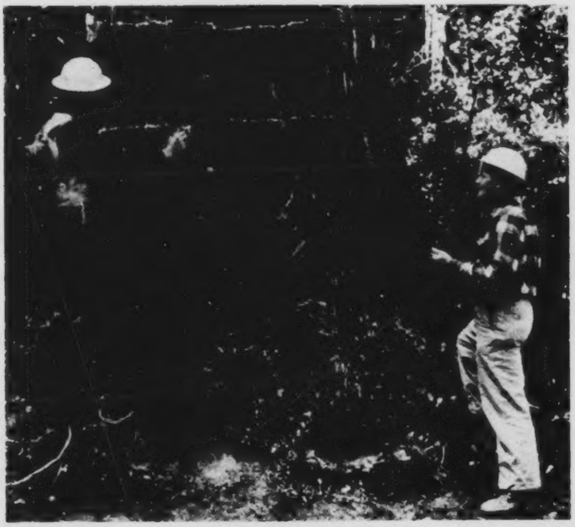
WORK PERFORMED

What would you do as a worker in this group?

You would supervise others at a farm, fish hatchery, nursery, ranch, park, forest, or landscaping or lumbering firm. You might work along with those you supervise.

You would perform one or more of the following tasks.

- Supervise workers who plant, cultivate, and harvest farm crops.
- Supervise workers who plant, cultivate, harvest, and pack seedling trees.
- Supervise workers who milk, breed, and care for dairy cows.
- Oversee the work in a fish hatchery.



This logging supervisor oversees the planning of the tree harvest.

California Redwood Association

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WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Demonstrate how to use the necessary tools and equipment.
- Work with plants and animals.
- Use tact to get people to finish a task.
- Give clear directions.
- Organize in the best way the work to be done.

As a crop supervisor, you would explain how to improve soil conditions.

USDA — Soil Conservation Service

CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you been in charge of a scout or other group for a clean-up day? Did they follow your directions?
- Have you belonged to Future Farmers of America or 4-H? Did you have a project involving plants or animals?
- Have you worked full days mowing lawns, cutting weeds, or picking fruit? Could you do this type of work every day?
- Do you like to camp, fish, or hunt? Do you like to be outdoors?
- Have you used rakes, shovels, saws, or other tools? Do you like to work with your hands?

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03.02 WTC GENERAL SUPERVISION: NATURE

Directing a community recycling project can give you experience in organizing work and supervising workers.

PREPARATION

How can you prepare for and enter this kind of work?

Jobs in this group require experience in doing the work to be supervised. Workers must know about the tools and methods used in the work.

Vocational and technical courses in agriculture, forestry, or related fields sometimes helps experienced people move into these jobs.

OTHER CONSIDERATIONS

What else should you consider?

Workers in this group usually stay with those being supervised all day. Workers may also be exposed to extremes of weather and other natural hazards.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

5. Activities resulting in recognition or appreciation from others.
9. Activities involving processes, methods, or machines.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
3. Planning and directing an entire activity.
4. Dealing with people.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Coordinating
PEOPLE	☐	■	☐	– Supervising
THINGS	☐	☐	■	– Precision Working

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
M Medium work.
3. Stooping, kneeling, crouching, and/or crawling.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

O Outside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	**Levels** Low 5	4	to 3	2	High 1
G – General			3		
V – Verbal			3		
N – Numerical			3		
S – Spatial			3		
M – Manual Dexterity			3		

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **4.**

Workers use logical and scientific thinking together with knowledge of agricultural production to supervise a variety of agricultural processes and workers. They interpret oral and written instructions. They deal with concrete variables such as picking and loading equipment, seed stocks, and poultry.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

T – Technical school courses in agriculture and related subjects.
V – Vocational school courses in agriculture.
NFT – Most occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 1 year up to and including 10 years (SVP 6, 7, 8).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

Important Courses

- Basic Math and Language Skills.

Helpful Courses

- Biological Sciences.

OCCUPATIONS IN GENERAL SUPERVISION: NATURE

Barn Boss	410.131-010	Supervisor, Poultry Farm	411.131-010
Supervisor, Diversified Crops	407.131-010	Supervisor, Poultry Hatchery	411.137-010
Supervisor, Fish Hatchery	446.134-010	Supervisor, Stock Ranch	410.131-022
Supervisor, Horticultural-Specialty Farming	405.131-010	Supervisor, Tree-Fruit-and-Nut Farming	403.131-010
Supervisor, Logging	459.133-010	Supervisor, Vegetable Farming	402.131-010
Supervisor, Park Workers	406.134-014		

TRAINING AND ANIMAL CARE

Animal training and care is the feeding and taking care of animals used for various purposes. Animals are trained to entertain or be of service to people. Many dogs, cats, birds, and fish are raised and sold as pets. Wild animals, marine animals, horses, and dogs are trained to perform or to race. Dogs are trained to lead the blind or protect people and property. Small animals are raised for medical research. Animal shelters, zoos, circuses, and pet shops employ workers in this group. Race tracks, medical labs, marine animal shows, and animal training schools also employ these workers.

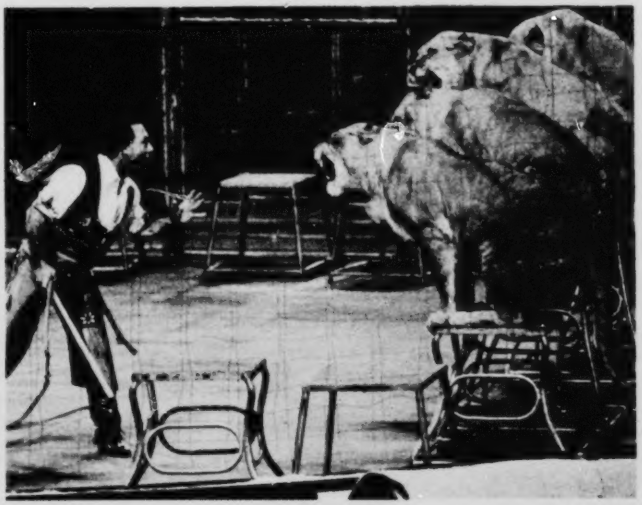
Veterinarians and jobs related to the caring of farm animals are not included in this group.

WORK PERFORMED

What would you do as a worker in this group?

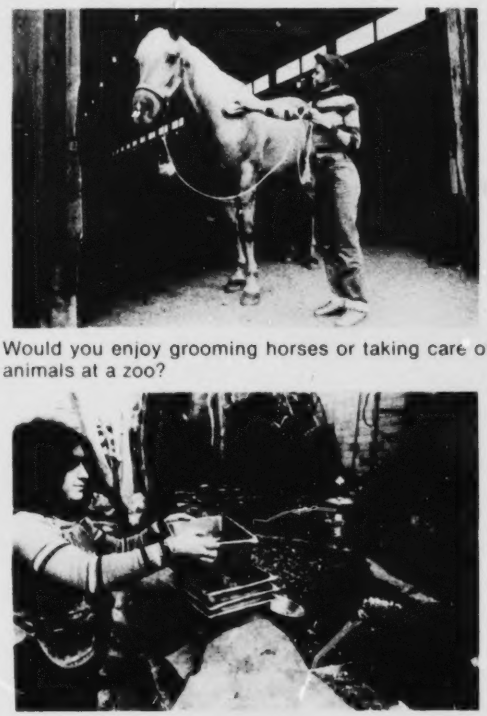
You would take care of animals by feeding, grooming, and exercising them. You would perform one or more of the following tasks.

Joseph Broderick, Trainer



Animal trainers help meet people's needs for protection and entertainment by training domestic and wild animals.

- Train animals to be obedient, perform acts, or serve as guards or watchdogs.
- Exercise animals at kennels or stables to keep them in good physical condition.
- Select and mix food for animals.
- Study behavior of racehorses and plan training programs for them.
- Take water samples and check the condition and temperature of fish tanks.
- Supervise workers who care for animals at a zoo.
- Comb and shape dogs' coats.
- Train animals to perform for a circus.
- Teach dogs to guide blind people.
- Train birds or other animals to perform night club acts or act in motion pictures or on television.
- Take care of ponies used to give children rides at a carnival.



Would you enjoy grooming horses or taking care of animals at a zoo?

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this type of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Like animals and feel responsible for their well-being.
- Know the habits and physical needs of the types of animals you work with.
- Judge the health and condition of an animal by the way it looks or acts.
- Use your hands and fingers to groom and treat animals without hurting them.
- Move eyes, hands, feet, and body together to saddle and ride horses, train animals, or keep animal shelters clean.
- Repeat signals and actions many times while training animals.

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A job in a pet shop can help you explore your interest in this kind of work.

The Humane Society of the United States

CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you raised or cared for an animal? Did you always remember to feed, water, and groom it?
- Have you taken care of a sick or injured animal? Can you tell if an animal is getting sick or better by the way it looks or acts?
- Have you lived or worked on a farm? Did you care for or work with animals? Did you clean barns, stables, or pens? Could you do this type of work every day?
- Have you had a hobby raising small animals or fish? Did you use eyedroppers, strainers, or other tools to feed, treat, or care for them?
- Have you trained a dog or other animal? Were you patient with the animal when you had to repeat commands many times? Did the animal learn what you were trying to teach?

PREPARATION

How can you prepare for and enter this kind of work?

Most animal care jobs are open to people able to follow directions and act quickly and surely. Most beginning workers are given simple duties. Other duties are added as workers gain experience. Some high schools, vocational schools, and junior colleges have courses in animal care. These courses include housing and feeding animals, basic zoology and anatomy, and methods of treating sick and injured animals.

Workers experienced in the care of certain animals may obtain jobs in training these animals as performers, guide dogs, or saddle horses.

OTHER CONSIDERATIONS

What else should you know about these jobs?

This type of work involves more than feeding, watering, and grooming. Sometimes workers must remove waste from cages, stables, animal shelters, or from the animals themselves. Treating sick or injured animals may expose the worker to bites, scratches, or kicks.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

3. Activities of a routine, definite, organized nature.
4. Activities involving direct personal contact to help or instruct others.
6. Activities involving the communication of ideas and information.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
4. Dealing with people.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Analyzing
PEOPLE	☐	■	☐	– Instructing
THINGS	☐	■	☐	– Manipulating

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
M Medium work.
3. Stooping, kneeling, crouching and/or crawling.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.
O Outside.
B Both: inside and outside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low to High 5 4 3 2 1
G – General	4 – 3
V – Verbal	4 – 3
P – Form Perception	4 – 3
K – Motor Coordination	4 – 3
F – Finger Dexterity	4 – 3
M – Manual Dexterity	3
E – Eye-Hand-Foot Coordination	4 – 3

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **3-4**.

Workers use reasoning and personal judgment to carry out instructions presented in written, oral, or diagram form. They deal with problems involving concrete variables such as grooming, equipment, cages, and feeds.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter most occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

NFT – Most occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 1 month up to and including 4 years (SVP 3, 4, 5, 6, 7).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

OCCUPATIONS IN ANIMAL TRAINING AND CARE

Animal Caretaker	**410.674-010**
Animal Keeper	**412.674-010**
Animal-Ride Attendant	**349.674-010**
Animal Trainer	**159.224-010**
Dog Bather	**418.677-010**
Dog Groomer	**418.674-010**
Horseshoer	**418.381-010**
Racehorse Trainer	**153.224-014**
Stable Attendant	**410.674-022**

ELEMENTAL WORK: NATURE

Elemental work: nature involves the use of physical strength and energy to do things with your hands. Work in this group of jobs is usually done outside. These jobs are found on farms, fishing boats, or along fishing waters. Workers in this group may also find jobs in forests, parks, gardens, or nurseries.

WORK PERFORMED

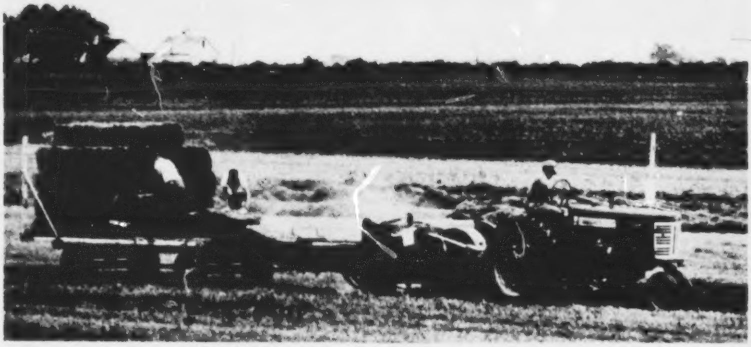
What would you do as a worker in this group?

You would do active, physical, and sometimes heavy work. Much of the work would be outdoors. You would use hand tools such as shovels or axes. Sometimes, you would operate equipment such as plows, chain saws, or fish nets. You would perform one or more of the following tasks.

- Plant, tend, or harvest various types of crops.
- Tend livestock or poultry.
- Take care of flowers, plants, trees, or grass.
- Plant trees or operate logging equipment.
- Help care for a state or national park.
- Work on a fishing boat.
- Supervise others who perform these duties.
- Provide a service to farmers such as spraying crops or tending an irrigation system.

Florida News Bureau

The work on a fishing boat may include cleaning the fish after the catch has been hauled aboard.



Workers spend many hours doing hard physical labor at harvesting time.

Illinois Agricultural Association

Although logging equipment reduces some of the heavy physical work, tree cutters must have physical strength and energy to operate it.

Bill Hedrich, Hedrich-Blessing

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this type of work?

To do this type of work you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Do active physical work for most of each work day.
- Work with your hands and use hand tools.
- Adjust to routine work.
- Operate farming, fishing, or logging equipment.
- Work outdoors in all kinds of weather.
- Work with plants or animals.

03.04 WTG ELEMENTAL WORK: NATURE

Have you earned money doing outdoor physical work? Did you like it?

CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you worked full days mowing lawns, cutting weeds, or picking fruit? Could you do this type of work every day?
- Have you delivered newspapers or shoveled snow? Do you mind working outside in all kinds of weather?
- Have you used rakes, shovels, saws, or other tools? Do you like to work with your hands?
- Have you lived on a farm? Did you have daily chores? Do you like this type of work?
- Do you like to camp, fish, or hunt? Do you like to be outdoors?

PREPARATION

How can you prepare for and enter this kind of work?

Specific training is not required for most jobs in this group. If training is needed, the employer usually gives it to the workers when they are hired or when duties change. Some jobs in local, state, or national parks require a Civil Service test.

Farm experience is helpful in getting a full-time farm job. Seasonal farm jobs usually do not require experience. Many schools and training programs offer courses related to some of the full-time jobs in this group.

Outdoor recreation such as fishing, camping, or hunting provides helpful experience for some of these jobs.

OTHER CONSIDERATIONS

What else should you consider?

Many of these jobs require long hours of hard work at certain times of the year. For example, workers need to work long hours at planting or harvesting time or when schools of fish are found. Storms at sea, severe winter weather, or forest fires are hazards in some of the jobs. Some of these jobs are seasonal and provide short-term employment.

General farming jobs are found in most sections of the country. Forestry and lumbering work is found mostly in the timber producing areas of the Pacific Northwest and the South. Most commercial fishing jobs are located along the coasts and in the Great Lakes region. Jobs with nurseries, landscape companies, and lawn and tree service firms are usually found in city and suburban areas.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
3. Activities of a routine, definite, organized nature.
9. Activities involving processes, methods, or machines.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
2. Performing routine tasks.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	■	☐	☐	– Comparing
PEOPLE	■	☐	☐	– Taking Instruction/ Helping
THINGS	■	☐	☐	– Tending, Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

M Medium work.
H Heavy work.
2. Climbing and/or balancing.
3. Stooping, kneeling, crouching, and/or crawling.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

O Outside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels				
	Low		to		High
	5	4	3	2	1
P – Form Perception		4 – 3			
K – Motor Coordination		4 – 3			
F – Finger Dexterity		4			
M – Manual Dexterity			3		

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **2-3.**

Workers use simple reasoning to follow one- and two-step instructions concerning manual tasks outdoors. They deal with concrete variables such as rakes, saws, or fishing equipment.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter most occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

NFT – Most occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from a short demonstration up to and including 3 months (SVP 1, 2, 3).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for the completion of high school.

OCCUPATIONS IN ELEMENTAL WORK: NATURE

Apple-Packing Header	920.687-010
Artificial Inseminator	418.384-010
Bucker	454.684-010
Cemetery Worker	406.684-010
Chick Sexer	411.687-014
Clam Sorter	446.687-010
Cowpuncher	410.674-014
Dog Catcher	379.673-010
Faller 1	454.384-010
Farm Machine Operator	409.683-010
Farmworker, Dairy	410.684-010
Farmworker, Diversified Crops 1	407.663-010
Farmworker, Fruit 1	403.683-010
Farmworker, Fruit 2	403.687-010
Farmworker, General 1	421.683-010
Farmworker, General 2	421.687-010
Farmworker, Grain 1	401.683-010
Farmworker, Grain 2	401.687-010
Farmworker, Livestock	410.664-010
Farmworker, Poultry	411.584-010
Farmworker, Rice	401.683-014
Farmworker, Vegetable 1	402.663-010
Farmworker, Vegetable 2	402.687-010
Fisher, Line	442.684-010
Fisher, Net	441.684-010
Forest-Fire Fighter	452.687-014
Forest Worker	452.687-010
Greenskeeper 1	406.137-010
Groundskeeper, Industrial-Commercial	406.684-014
Groundskeeper, Parks and Grounds	406.687-010
Growth-Nedua Mixer, Mushroom	405.683-014
Harvest Worker, Fruit	403.687-018
Horticultural Worker 1	405.684-014
Horticultural Worker 2	405.687-014
Irrigator, Gravity Flow	409.687-014
Laborer, Brush Clearing	459.687-010
Laborer, Landscape	408.687-014
Laborer, Poultry Hatchery	411.687-022
Logger, All-Round	454.684-018
Log Sorter	455.684-010
Milker, Machine	410.685-010
Packer, Agricultural Produce	920.687-134
Poultry Debeaker	411.687-026
Poultry Inseminator	411.384-010
Poultry Tender	411.364-014
Shellfish-Bed Worker	446.684-014
Sorter, Agricultural Produce	529.687-186
Supervisor, Felling-Bucking	454.134-010
Teamster	919.664-010
Trapper, Animal	461.684-014
Tree Cutter	454.684-026
Tree Planter	452.687-018
Tree Pruner	408.684-018
Tree Trimmer	408.664-010
Tree-Trimmer Helper	408.667-010
Yard Worker	301.687-018

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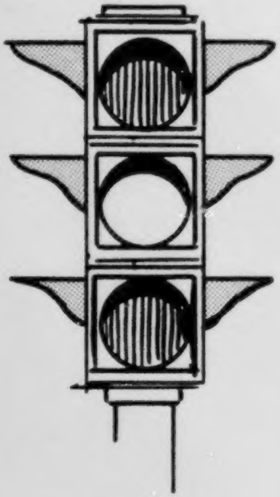
1

04.

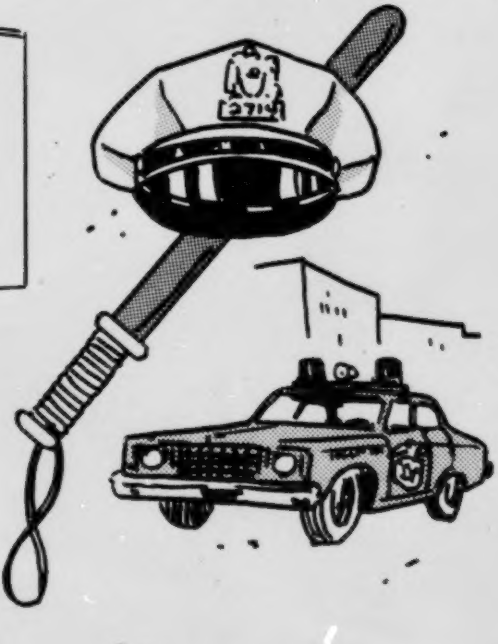
AUTHORITY



This is an interest in using authority to protect people and property.

You can satisfy this interest by working in law enforcement, fire fighting, and related fields. You may enjoy mental challenge and intrigue. You could investigate crimes or fires. You may prefer to fight fires and respond to other emergencies. You may want more routine work. Perhaps a job in guarding or patrolling would satisfy you. You may prefer to use your management ability. You could seek leadership positions in law enforcement and the protective services.

FIRE COMPANY No.1



RESTRICTED
AREA
AUTHORIZED
PERSONNEL ONLY

SAFETY AND LAW ENFORCEMENT

Safety and law enforcement is the enforcing of rules concerning public welfare and safety. Most jobs in this group are in government services. Police departments, fire departments, and similar agencies employ many workers. Businesses offer a few job openings.

WORK PERFORMED

What would you do as a worker in this group?

You would enforce laws and safety rules. In many jobs, you would plan and direct the work of other police or safety officers. In some jobs, you would investigate crimes or disasters.

Most of your duties would depend on your specific job. You might perform one or more of the following tasks.

- Direct workers to put out a fire or perform a rescue operation.
- Question suspects and witnesses and make arrests.
- Train or instruct new recruits in a police or fire department.
- Command a police boat to regulate harbor activity.
- Investigate and arrest persons suspected of illegal sale or use of narcotics.
- Plan and direct accident prevention and safety programs.

A fire chief must remain calm in emergency situations.

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New York City Police Department

Police officers use tact and courtesy to question witnesses and collect evidence related to crimes.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Know laws and safety rules as well as ways to enforce them.
- Organize, plan, and direct the work of others.
- Use guns and safety equipment skillfully.
- Use physical strength in emergency situations.
- Collect, organize, and analyze evidence related to crimes or accidents.
- Write clear reports.
- Use tact and courtesy in working with others.

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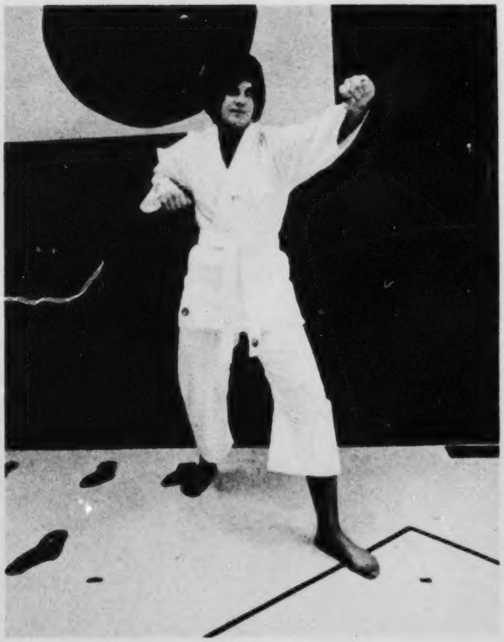
CLUES

Do you have or can you develop these skills, abilities, and interests?
Your answers to the following questions will help you decide.

- Have you had courses in government, civics, or in the study of crime? Did you find these subjects interesting?
- Have you been a member of a volunteer fire department or emergency rescue squad? Were you given training for this work?
- Do you read detective stories or follow the details of current trials? Do you try to solve mysteries as you read them?
- Have you been an officer of a school safety patrol unit? Do you like being responsible for the work of others?
- Have you used a gun for hunting or in target practice? Are you a good shot?
- Have you had lessons in wrestling, karate, or judo? Would you like work involving the use of such physical skills?



Self-defense skills can help you meet the physical demands of this group's occupations.

Careful inspection of safety equipment may save a worker's life.

Police Department, Bloomington, Illinois

PREPARATION

How can you prepare for and enter this kind of work?

Local civil service rules control the choice of police officers in most large cities and in many small ones. Applicants must meet specified requirements. They must be U. S. citizens, and be within certain height and weight ranges. Applicants may be required to take written, oral, and physical tests. Often their strength and their ability to move quickly and easily are tested. Applicants should be physically able to use firearms or work on dangerous assignments. All applicants are investigated.

Most police departments hire people with a high school education or its equal. However, some departments hire people with less education. They often accept those who have done guarding or volunteer police work. In some cities, high school graduates can enter police work as cadets or trainees.

Jobs with federal law enforcement agencies usually require a college degree. For example, FBI agents are required to have a degree in law or accounting. Those with accounting degrees must have at least one year of related work experience.

Workers are promoted to most jobs in this group after they gain experience in related jobs. However, a few jobs are open to people with the proper education and training in the field.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Most people in these jobs may be called to work any time they are needed. They may work overtime during emergencies. In many of these jobs, the worker may be exposed to physical danger.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
3. Planning and directing an entire activity.
4. Dealing with people.
6. Working under pressure.
7. Making decisions using personal judgment.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Coordinating
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
L Light work.
2. Climbing and/or balancing.
3. Stooping, kneeling, crouching, and/or crawling.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.
B Both: inside and outside.
6. Hazards.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels				
	Low		to		High
	5	4	3	2	1
G – General			3 – 2		
V – Verbal			3 – 2		
P – Form Perception		4 – 3			
Q – Clerical Perception			3		

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **5**.

Workers apply logical thinking to conduct detailed investigations or coordinate activities related to enforcing laws and safety regulations. They collect facts, evaluate information, and draw valid conclusions. They deal with abstract and concrete variables such as laws, criminal evidence, and fire fighting equipment.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

C – College degree with a major in law, law enforcement, or accounting.

T – Studies in a one- or two-year technical program in law enforcement.

NFT – Some occupations in this group have no related formal education or training programs.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

Training Time

Occupations in this group may require from over 1 year up to and over 10 years (SVP 6, 7, 8, 9).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

Important Courses

- Courses required for entrance to post high school formal programs.

Helpful Courses

- Language Skills, Government, Sociology.

OCCUPATIONS IN SAFETY AND LAW ENFORCEMENT

Detective	375.267-010	**Investigator, Private**	376.267-018
Detective Chief	375.167-022	**Park Superintendent**	188.167-062
Detective, Narcotics and Vice	375.267-014	**Police Chief**	375.117-010
Fire Captain	373.134-010	**Police Officer 1**	375.263-014
Fire Chief	373.117-010	**Police Sergeant, Precinct 1**	375.133-010
Fire Marshal	373.167-018	**Sheriff, Deputy**	377.263-010
Fish and Game Warden	379.167-010	**Special Agent**	375.167-042
Guard, Chief	372.167-014	**Special Agent-in-Charge**	376.167-010
Harbor Master	375.167-026	**State-Highway Police Officer**	375.263-018

SECURITY SERVICES

Security services keep people and property safe from unlawful acts or from such hazards as fires or accidents. Many jobs in this group are found in government service. Hotels, stores, resorts, and industries may hire some workers in this group.

WORK PERFORMED

What would you do as a worker in this group?

You would patrol, guard, or investigate to prevent theft, injury, disorder, destruction, or vandalism.

You would perform one or more of the following tasks.

- Act as a bodyguard to protect a person from injury or invasion of privacy.
- Guard money or other valuables in an armored truck.
- Guard prisoners in a jail.
- Keep order in a night club and remove disorderly persons.
- Watch people in swimming areas to prevent drowning and provide first aid.
- Prevent or put out fires or rescue passengers and crew at plane crash sites.
- Patrol a ski area to protect skiers.

COUNTY
K AND TRUST CO
BRINK'S
PITTSTON
SECURITY SINCE 1859

Brinks

Would you like to have the responsibility of protecting the property of others?

Robeson's Department Store

A security guard must have a keen eye to detect suspicious behavior. Can you detect what illegal activity is taking place?

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Know laws and safety rules.
- Recognize illegal activities and signs of danger.
- Stay calm when facing emergency situations.
- Use physical strength in emergency situations.
- Use guns or fire fighting equipment skillfully.
- Make quick decisions and take prompt action.
- Work well with people in many kinds of situations.

CLUES

Do you have or can you develop these skills, abilities, and interests?
Your answers to the following questions will help you decide.

- Have you been a member of a school safety patrol? Did you like enforcing safety rules?
- Have you used a gun for hunting or target practice? Are you a good shot?
- Have you been a member of a volunteer fire or rescue squad? Can you stay calm in emergencies?
- Have you taken a first aid course? Can you treat injuries quickly and skillfully?

Could you follow rules yourself?

Could you enforce rules upon others?

PREPARATION

How can you prepare for and enter this kind of work?

Some employers require workers to have a high school education or its equal. Applicants must provide character references and have no police record. Some employers require that applicants show their skill in using firearms. People applying for federal government jobs need to take written and physical tests.

Many of these jobs are open to those who have little work experience. However, employers often prefer people who have worked for military, local, or state police.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Some of these jobs involve night work. In some jobs, workers take turns working daytime, weekend, and holiday shifts. Workers run the risk of injury by lawbreakers and suspects. This risk is higher when the worker is arresting or guarding such persons.

Workers in these jobs are often required to be bonded. This means they need to have special insurance to assure their honesty. They may also be fingerprinted.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
3. Activities of a routine, definite, organized nature.
6. Activities involving the communication of ideas and information.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

4. Dealing with people.
6. Working under pressure.
7. Making decisions using personal judgment.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	■	☐	– Compiling
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	☐	■	☐	– Driving/Operating

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

- L Light work.
- M Medium work.
- 4. Reaching, handling, fingering, and/or feeling.
- 5. Talking and/or hearing.
- 6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

- I Inside.
- B Both: inside and outside.
- 6. Hazards.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	**Levels** Low 5	4	to 3	2	High 1
G – General			3		
V – Verbal			3		
P – Form Perception		4 –	3		
Q – Clerical Perception		4			
K – Motor Coordination		4 –	3		
M – Manual Dexterity		4 –	3		

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **3-4.**

Workers use reasoning and technical knowledge to handle security or emergency situations. They carry out instructions presented in written, oral, or diagram form. They deal with practical problems involving concrete variables such as firearms, first aid equipment, and fire fighting tools.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter most occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

T – Studies in a one- or two-year technical program in law enforcement.

NFT – Most occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 1 month up to and including 1 year (SVP 3, 4, 5).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

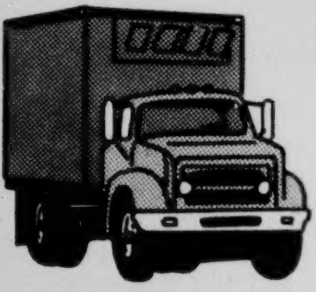
- Courses required for completion of high school.

OCCUPATIONS IN SECURITY SERVICES

Armored-Car Guard	**372.567-010**
Bodyguard	**372.667-014**
Border Guard	**375.363-010**
Correction Officer	**372.667-018**
Detective 1	**376.367-014**
Detective 2	**376.667-014**
Fire Inspector	**373.367-010**
Fire Ranger	**452.367-014**
Guard, Security	**372.667-034**
Lifeguard	**379.667-014**
Parking Enforcement Officer	**375.587-010**
Park Ranger	**169.167-042**
Police Officer 2	**375.367-010**
Ski Patroller	**379.664-010**

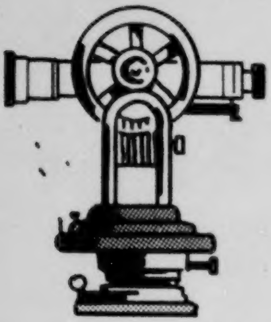
Delta Air Lines

05.

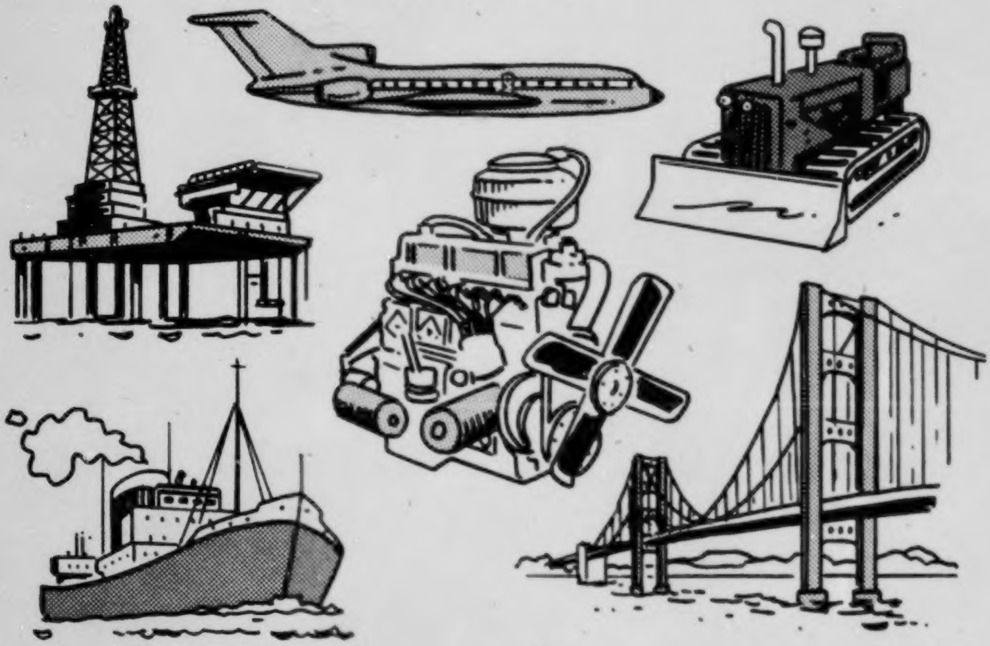


MECHANICAL

This is an interest in applying mechanical principles to practical situations, using machines, hand tools, or techniques.



You can satisfy this interest in a variety of work ranging from routine to complex professional jobs. You may enjoy working with ideas about things. You could seek a job in engineering or in a related technical field. You may prefer to deal directly with things. You could find a job in the crafts and trades, building, making, or repairing things. You may like to drive or operate vehicles and special equipment. You may prefer routine or physical work in settings other than factories. Perhaps work in mining or construction would satisfy you.



ENGINEERING

Engineering is the use of science and mathematics to solve problems in construction, manufacture, and other industries. Factories, construction companies, mines, oil fields, and research labs employ workers in this group.

WORK PERFORMED

What would you do as a worker in this group?

You would specialize in architecture or in one of the engineering fields. These fields include electrical, electronic, civil, mechanical, ceramic, chemical, aerospace, or industrial engineering. You would conduct research and design products or methods to solve engineering problems. You would perform one or more of the following tasks.

- Design and oversee the building of airports, bridges, or dams.
- Plan industrial equipment layout and workflow.
- Design mechanical, electrical, or electronic equipment.
- Design irrigation systems to provide water for farming.
- Design ways to mine deposits of ore or coal.
- Conduct research to develop new materials for industry.

Savannah River Plant

Esmark

Your work as an engineer may take you to a testing center, a construction site, or a drilling rig at sea.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this kind of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Know and apply basic principles of engineering.
- Use math and science to solve engineering problems.
- Use chemical formulas.
- Form a mental image of objects or structures by looking at drawings.
- Make drawings to illustrate machine designs, factory layouts, or highway plans.
- Persuade, advise, and assist customers in purchasing engineering products or services.
- Explain technical ideas to others.

Abbott

You would use computers to research and develop new products.

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Dow Chemical USA

Manufacturing engineers are responsible for training workers to use a new system.

CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you read mechanical or automotive design magazines? Can you understand the technical articles in them?
- Have you taken courses in advanced math or science? Do you like these subjects?
- Have you built a model airplane or car? Can you look at drawings or read directions and picture the final structure?
- Have you built a radio, television, or amplifier using a commercial kit? Do you like to work with electrical or electronic products?

PREPARATION

How can you prepare for and enter this kind of work?

A background in math, physics, and chemistry is needed to enter most engineering schools. An engineering degree program includes courses in math, physics, chemistry, social sciences, and English. The last two years are devoted to specialized engineering courses.

Some engineering schools have agreements with liberal arts colleges. Such agreements allow students to spend three years in college and two years in engineering school. A degree is then granted by each school. Some engineering schools offer work-study programs. Students earn a part of their tutition and get experience as they learn. However, these programs take five or six years to complete.

Workers usually need a bachelor's degree in engineering to enter this type of work. However, college graduates trained in science or math may qualify for some beginning jobs. Experienced technicians with courses in engineering are sometimes advanced to engineering jobs.

All states require engineers whose work affects the life, health, or property of others to have a license. An engineering degree and four years of experience are usually required for a license. License applicants may also need to pass a state exam.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Jobs in this group often require workers to visit construction sites, plants, mines, and other work areas.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
2. Activities involving business contact.
6. Activities involving the communication of ideas and information.
7. Activities of a scientific and technical nature.
8. Activities involving creative thinking.
9. Activities involving processes, methods, or machines.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
4. Dealing with people.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Synthesizing
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	☐	■	☐	– Operating/ Controlling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
L Light work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.
B Both: inside and outside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low to High 5 4 3 2 1
G – General	2 – 1
V – Verbal	2 – 1
N – Numerical	2 – 1
S – Spatial	2
P – Form Perception	3 – 2

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **5-6.**

Workers apply principles of logical or scientific thinking to the design, production, construction, or processing of products or materials. They interpret technical information and deal with formulas and other scientific equations. They also deal with abstract and concrete variables such as materials stress, chemical reactions, measuring equipment, and aesthetic design.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.
A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

G – Graduate degree in engineering for some occupations.
C – Four-year degree in engineering for most occupations.

ENGINEERING WTC 05.01

Training Time

Occupations in this group may require from over 4 years up to and over 10 years (SVP 8, 9).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

Important Courses

- Courses required for entrance to post high school formal programs.
- Algebra/Geometry, Advanced Math, Physics.

Helpful Courses

- Chemistry, Composition.

OCCUPATIONS IN ENGINEERING

Aerodynamist	002.061-010
Aeronautical-Design Engineer	002.061-022
Aeronautical Engineer	002.061-014
Aeronautical-Research Engineer	002.061-026
Aeronautical Test Engineer	002.061-018
Agricultural Engineer	013.061-010
Architect	001.061-010
Architect, Marine	001.061-014
Automotive Engineer	007.061-010
Ceramic Engineer	006.061-014
Chemical Engineer	008.061-018
Civil Engineer	005.061-014
Clerical-Methods Analyst	161.267-010
Configuration Management Analyst	012.167-010
Director, Research and Development	189.117-014
Electrical Engineer	003.061-010
Electrical Engineer, Power System	003.167-018
Electrical-Research Engineer	003.061-026
Electrical Technician	003.161-010
Electrical Test Engineer	003.061-014
Electronics Engineer	003.061-030
Electronics Technician	003.161-014
Electronics-Test Engineer	003.061-042
Engineer-in-Charge, Transmitter	003.167-034
Facilities Planner	019.261-018
Fire-Protection Engineer	012.167-026
Forest Engineer	005.167-018
Health Physicist	079.021-010
Illuminating Engineer	003.061-046
Industrial Engineer	012.167-030
Instrumentation Technician	003.261-010
Landscape Architect	001.061-018
Laser Technician	019.181-010
Logistics Engineer	019.167-010
Manufacturing Engineer	012.167-042
Marine Engineer	014.061-014
Mechanical-Design Engineer, Products	007.061-022
Mechanical Engineer	007.061-014
Mechanical-Engineering Technician	007.161-026
Metallurgist, Extractive	011.061-018
Mining Engineer	010.061-014
Nuclear Engineer	015.061-014
Optical Engineer	019.061-018
Optomechanical Technician	007.161-030
Ordnance Engineer	019.061-022
Petroleum Engineer	010.061-018
Planning Engineer, Central Office Facilities	003.061-050
Plant Engineer	007.167-014
Pollution-Control Engineer	019.081-018
Production Engineer	012.167-046
Production Planner	012.167-050
Product-Safety Engineer	012.061-010
Quality-Control Engineer	012.167-054
Railroad Engineer	005.061-026
Safety Engineer	012.061-014
Safety Engineer, Mines	010.061-026
Sales Engineer, Aeronautical Products	002.151-010
Sales-Engineer, Electrical Products	003.151-010
Sales Engineer, Mechanical Equipment	007.151-010
Sales Engineer, Mining-and-Oil-Well Equipment and Service	010.151-010
Sanitary Engineer	005.061-030
Structural Engineer	005.061-034
Systems Engineer, Electronic Data Processing	003.167-062
Time-Study Engineer	012.167-070
Tool Designer	007.061-026
Tool Planner	012.167-074
Tool Programmer, Numerical Control	007.167-018
Transportation Engineer	005.061-038
Welding Engineer	011.061-026

MANAGERIAL WORK: MECHANICAL

Managerial work: mechanical is the directing of technical operations in an industry, utility, or government agency. Jobs in this group are found in such fields as mining, construction, communications, manufacture, transportation, and fuel production.

WORK PERFORMED

What would you do as a worker in this group?

You would plan, direct, and organize technical activities. You would perform one or more of the following tasks.

- Direct operations of a pipeline construction company.
- Plan work for the setup and care of oil drilling rigs and pumps.
- Direct operations in a coal mine, ore pit, or rock quarry.
- Organize the construction or repair of roads, bridges, road drains, and tunnels.
- Direct the construction of telephone or telegraph equipment.
- Develop and oversee all processing in a brewery.

Grumman Corporation

This construction superintendent directs the building of a municipal sewage treatment plant.

This worker uses math and blueprint reading skills to solve production problems.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this kind of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Know the technical details of a field such as construction or mining.
- Speak and write clearly.
- Use numbers to plan budgets or solve production problems.
- Make judgments based on data that can be measured.
- Encourage people to work in an efficient manner.
- Use charts, maps, and blueprints.
- Stand or walk to observe work progress or problems.
- Perform a variety of duties which often change.

CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you had courses in chemistry, physics, and advanced math? Did you enjoy these courses?
- Have you taken shop courses in industrial arts? Can you deal with mechanical and technical problems?
- Have you collected rocks or built high fidelity equipment? Do you like technical activities?

PREPARATION

How can you prepare for and enter this kind of work?

Most workers promoted to jobs in this group are skilled technicians. These workers must have five to ten years of work experience in the technical field. They also must have training and experience in management. College courses in the specific technical field and in management are usually needed. Training often includes instruction in computer science.

Some employers provide management training for the technicians they plan to promote to these jobs. Clerical workers who plan production and work schedules may be promoted to these jobs if they have the technical training.

You can learn to deal with mechanical and technical problems in industrial arts classes.

OTHER CONSIDERATIONS

What else should you know about these jobs?

These workers do not stay in an office. They often tour work sites. Workers are subject to the same hazards as the people they supervise. Hazards include falling objects, cave-ins, and ventilation problems.

Workers in this group usually specialize in one technical field. If they change companies, it is usually to other firms in the same field. Some industries, such as construction and petroleum, require workers to travel. Some workers have to move their homes to other cities or foreign countries.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.
7. Activities of a scientific and technical nature.
9. Activities involving processes, methods, or machines.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Coordinating
PEOPLE	☐	■	☐	– Supervising
THINGS	■	☐	☐	– Handling

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
3. Planning and directing an entire activity.
4. Dealing with people.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
L Light work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.
B Both: inside and outside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	**Levels**				
	Low		to		High
	5	4	3	2	1
G – General				2	
V – Verbral				2	
N – Numerical			3 –	2	
S – Spatial			3 –	2	
P – Form Perception			3		
Q – Clerical Perception			3		

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **5.**

Workers apply logical or scientific thinking to identify and solve management and quality control problems in a technical establishment. They interpret technical instructions presented in mathematical or diagram form. They deal with several abstract and concrete variables such as work schedules, new processing techniques, coordination of workers' activities, and testing equipment.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

G – Graduate degree in engineering or related field.
C – Four-year degree in engineering or related technology and courses in business management.
T – Technical school courses in certain technologies.
V – Vocational courses in the trade and industrial fields.
NFT – Some occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 2 years up to and including 10 years (SVP 7, 8, 9).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

Important Courses

- Courses required for entrance to post high school formal programs.
- Algebra/Geometry.

Helpful Courses

- Physics, Chemistry.

OCCUPATIONS IN MANAGERIAL WORK: MECHANICAL

Appliance-Service Supervisor	187.167-010	**Superintendent, Concrete-Mixing Plant**	182.167-022
Director, Quality Control	012.167-014	**Superintendent, Construction**	182.167-026
Dispatcher, Chief 1	184.167-038	**Superintendent, Electric Power**	184.167-162
Field Supervisor, Oil-Well Services	930.131-010	**Superintendent, Drilling and Production**	181.167-014
General Supervisor	183.167-022	**Superintendent, Maintenance**	184.167-170
Maintenance Supervisor	184.167-050	**Superintendent, Maintenance**	184.167-174
Maintenance Supervisor	891.137-010	**Superintendent, Maintenance**	189.167-046
Manager, Bulk Plant	181.117-010	**Superintendent, Oil-Well Services**	010.167-018
Manager, Customer Technical Services	189.117-018	**Superintendent, Sanitation**	188.167-098
Manager, Food Processing Plant	183.167-026	**Superintendent, Water-and-Sewer Systems**	184.161-014
Mine Superintendent	181.117-014	**Supervisor of Communications**	184.167-230
PR Supervisor	939.137-014	**Supervisor, Mine**	181.167-018
Production Superintendent	183.117-014	**Supervisor, Sewer System**	184.167-238
Representative, Personal Service	236.252-010	**Supervisor, Waterworks**	184.167-246
Section Supervisor	939.137-018	**Tooling Coordinator, Production Engineering**	169.167-054
Superintendent, Building	187.167-190	**Tool Pusher**	930.130-010

ENGINEERING TECHNOLOGY

Engineering technology is the technical detail work required to apply engineering ideas. This work includes surveying, drafting, and engineering technology. It also includes controlling the flow of materials to meet production schedules. Factories, construction companies, architects, engineering firms, and research labs employ workers in this group.

WORK PERFORMED

What would you do as a worker in this group?

You would do the accurate detail work needed to support engineering activities. You would perform one or more of the following tasks.

- Survey land to set boundary lines or determine construction sites.
- Take aerial photographs and prepare maps.
- Make detailed drawings of buildings, machinery, or vehicles.
- Measure radiation in a work area of a nuclear plant.
- Coordinate oil prospecting activities to discover new oil fields.
- Analyze flight test data and write engineering reports about aircraft performance.

Would you prefer to work most of the time outside as a surveyor or inside as a drafter?

Sun Company

Field engineers provide technical assistance to workers prospecting for new oil fields.

Could you pay such strict attention to details?

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this kind of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following jobs. Not all items are important to every job.

- Convert technical ideas into working drawings.
- Use complex formulas in math.
- Move eyes, hands, and fingers together to use drafting tools or measuring instruments.
- Do fine detail work in drafting.
- Walk long distances while carrying instruments or equipment.
- Write clearly and with technical accuracy.
- Do work which requires high levels of accuracy.

CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you taken courses in mechanical drawing? Can you form a mental image of objects from drawings?
- Have you made models of airplanes or cars following detailed plans? Can you follow written instructions easily?
- Have you taken courses in advanced math, physics, or chemistry? Do you like these subjects?
- Have you used a compass? Can you read maps with accuracy?

PREPARATION

How can you prepare for and enter this kind of work?

Most jobs in this group require special training and work experience. Many employers provide on-the-job training to prepare workers for specific tasks.

Technical and vocational schools offer surveying programs of one to three years. Many colleges offer degrees in surveying. People with some classroom instruction can start as instrument workers. They may become party chiefs or registered surveyors after getting enough experience. Written tests may be required for advancement. People without formal training in surveying start by helping instrument workers. They must get experience and formal training to operate instruments. They become party chiefs only after extensive experience. All fifty states require land surveyors to have a license. License requirements usually include four to eight years of experience.

For drafting jobs, high school courses in math, science, industrial arts, and mechanical drawing are important. Post high school technical courses are needed for advanced drafting jobs. Workers usually start as assistant drafters and advance as skills develop. Three- and four-year apprenticeship programs in drafting are sometimes offered. Apprentices earn money while getting classroom and on-the-job training.

Technicians usually need specialized training. Credits earned in technical and vocational schools can usually be transferred to colleges. These credits can then be applied toward engineering and other degrees.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Surveyors do most of their work outdoors. They may work long hours when weather conditions are suitable. They are exposed to hazards of machinery on construction projects or cars when surveying near highways. Some surveyors travel to distant job sites or camp out.

Most drafting work takes place in an office, but visits to work sites and factories may be required. Some drafters do specialized tasks, but others do a variety of tasks.

Technicians are often the link between engineers and skilled workers.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
7. Activities of a scientific and technical nature.
9. Activities involving processes, methods, or machines.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

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05.03 WTG ENGINEERING TECHNOLOGY

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Coordinating
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	☐	☐	■	– Precision Working

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
L Light work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.
O Outside.
B Both: inside and outside.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low to High 5 4 3 2 1
G – General	3 – 2
N – Numerical	3 – 2
S – Spatial	3 – 2
P – Form Perception	3 – 2
Q – Clerical Perception	3
K – Motor Coordination	3 – 2
F – Finger Dexterity	3 – 2
M – Manual Dexterity	3

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **5**.

Workers apply scientific thinking to the specialties of surveying, drafting, and technical coordination. They interpret technical instructions presented in mathematical or diagram form. These workers deal with abstract and concrete variables such as surveying and drafting techniques and tools.

Entry and Advancement Information

- Ē – To enter some occupations workers only need the required competencies and credentials.
- A – To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- C – College degree in surveying.
- T – Studies in one and two year technical programs in related technologies.
- V – Vocational courses in the Trades and Industries area.
- NFT – Some occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 2 years up to and including 10 years (SVP 7, 8).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

Important Courses

- Courses required for entrance to post high school formal programs.
- Algebra/Geometry.

Helpful Courses

- Chemistry, Physics.

OCCUPATIONS IN ENGINEERING TECHNOLOGY

Air Traffic Control Specialist, Station	**193.162-014**
Air-Traffic-Control Specialist, Tower	**193.162-018**
Chief Drafter	**007.261-010**
Chief of Party	**018.167-010**
Construction Inspector	**182.267-010**
Detailer	**017.261-018**
Die-Drawing Checker	**007.167-010**
Dispatcher	**912.167-010**
Drafter, Aeronautical	**002.261-010**
Drafter, Architectural	**001.261-010**
Drafter, Assistant	**017.281-018**
Drafter, Automotive Design	**017.281-022**
Drafter, Automotive Design Lay-Out	**017.281-026**
Drafter, Cartographic	**018.261-010**
Drafter, Civil	**005.281-010**
Drafter, Commercial	**017.261-026**
Drafter, Electrical	**003.281-010**
Drafter, Electronic	**003.281-014**
Drafter, Geological	**010.281-014**
Drafter, Heating and Ventilating	**017.261-034**
Drafter, Marine	**014.281-010**
Drafter, Mechanical	**007.281-010**
Drafter, Oil and Gas	**017.281-030**
Drafter, Structural	**005.281-014**
Engineering Assistant, Mechanical Equipment	**007.161-018**
Estimator	**160.267-018**
Estimator	**166.261-018**
Field Engineer	**193.262-018**
Flight Engineer	**621.261-018**
Industrial Engineering Technician	**012.267-010**
Inspector, Building	**168.167-030**
Inspector, Quality Assurance	**168.287-014**
Land Surveyor	**018.167-018**
Material Scheduler	**012.187-010**
Observer, Seismic Prospecting	**010.161-018**
Packaging Engineer	**019.187-010**
Pattern Grader-Cutter	**781.381-022**
Patternmaker	**781.381-026**
Potogrammetrist	**018.261-026**
Pollution-Control Technician	**029.261-014**
Production Clerk	**221.382-018**
Radiation Monitor	**199.167-010**
Radiographer	**199.361-010**
Radiotelephone Operator	**193.262-034**
Specification Writer	**019.267-010**
Surveyor Assistant, Instruments	**018.167-034**
Surveyor, Geodetic	**018.167-038**
Surveyor, Marine	**018.167-046**
Surveyor, Mine	**018.167-050**
Technical Illustrator	**017.281-034**
Tool-Drawing Checker	**007.167-022**
Tower Operator	**910.362-010**
Traffic Technician	**199.267-030**
Transmitter Operator	**193.262-038**
Video Operator	**194.282-010**

AIR AND WATER VEHICLE OPERATION

Air and water vehicle operation is the moving of passengers or cargo by plane or ship. The workers included in this group pilot airplanes or ships or supervise others who do. They work for shipping companies and commercial airlines. Companies and people who have their own boats or airplanes also hire these workers. Workers in this group travel to many ports or airports in the world.

Boeing

American Telephone and Telegraph Co.

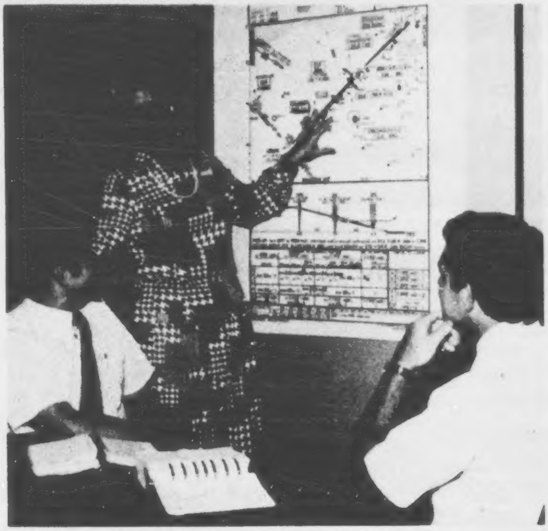
Would you enjoy piloting an air or water vehicle?

WORK PERFORMED

What would you do as a worker in this group?

You would pilot an airplane or ship or supervise other crew members in the vehicle's operation. You would travel over an established route or as directed by your employer. You would perform one or more of the following tasks.

- Fly an airplane for an airline or freight company.
- Check content, weight, and destination of cargo vehicle against load and fuel limits and assigned travel plan.
- Keep radio contact with others about weather conditions and traffic problems.
- Command the crew of a tugboat or fishing vessel.
- Serve as a flight instructor or a check pilot.
- Operate a vehicle such as a helicopter or a submarine.
- Read charts and use navigation instruments to plot or maintain course.



Flight training is done both in the classroom and in flight simulators.

Delta Air Lines

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

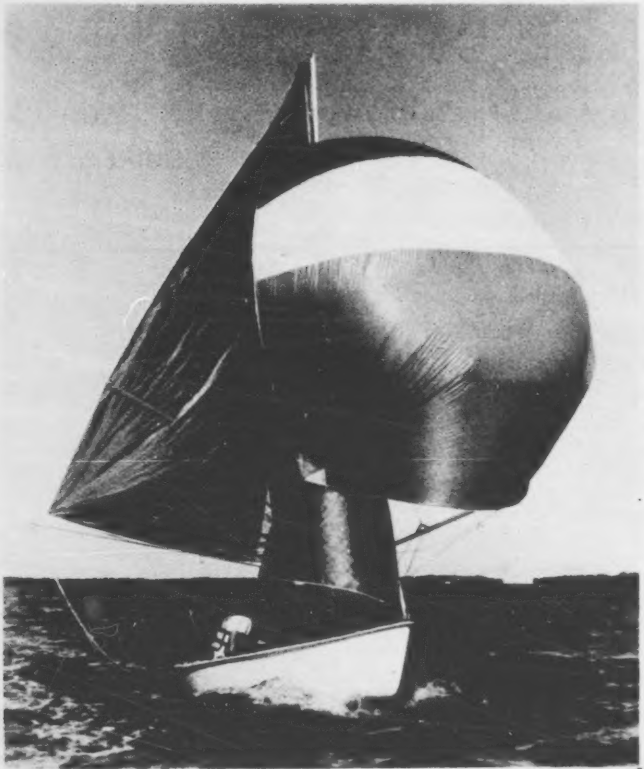
To do this kind of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Complete formal and on-the-job training to operate an airplane or ship.
- Understand and follow complex operating rules and procedures, including overseas flight and shipping rules.
- Judge distances and relationships of objects in space.
- Recognize a vehicle's malfunction by sound or other indications.
- Move eyes, hands, and feet together to operate levers, push pedals, or othewise control a vehicle.
- Read instrument panels, identify color signals, and steer a vehicle correctly and safely.
- Supervise or direct the members of a crew.
- Remain calm in face of emergencies.

CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Do you enjoy reading magazines or articles about airplanes and ships? Do you subscribe to such magazines?
- Have you built or operated a model airplane? Did you have any trouble reading and following the instructions?
- Have you been a member of a Civil Air Patrol unit? Did it include flight or ground training? Were you taught how to handle emergencies?
- Do you have a pilot's license? Are you studying for one?
- Do you own or can you operate a citizen's band radio? Do you understand the rules for its use? Do you know the common code words?
- Have you owned or operated a pleasure boat? Have you completed Coast Guard safety and navigation training? Can you read a compass?



AMF Alcort

You can further explore your interest in some of the group's occupations by learning how to sail a pleasure boat.

PREPARATION

How can you prepare for and enter this kind of work?

All airplane pilots must be licensed by the Federal Aviation Administration (FAA). They must also be rated for the number of engines and type of airplanes they fly. Commercial licenses call for 250 hours of flying experience. Captains of commercial airplanes must have special ratings for carrying freight and passengers. They must also be approved for instrument and night flying. People wishing to become pilots can learn to fly either in the armed services or in civilian flight schools approved by the FAA. Most major airlines have their own advanced pilot training programs. A high school education or its equal is needed to enter flight training. Some airlines prefer college graduates. To become an airline pilot, the trainee must have at least 1500 hours of flight time.

People become ship captains by advancing through lower officer ranks. The lowest rank is third mate. Most workers earn third mate positions by completing a training course at a marine academy.

Some marine trade unions offer programs to train seamen to become third mates. These trainees must be U. S. citizens. Their vision and general health must be approved by the U. S. Public Health Service. They must also pass Coast Guard tests on navigation, freight handling, and deck operations.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Airline pilots may frequently be away from home overnight due to their work schedules. Ships' officers are often away from home for long periods. Workers in this group face hazards such as severe weather conditions, mechanical failure, and possible collision. They must keep alert and ready to make quick and accurate decisions.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

05.04 WTG AIR AND WATER VEHICLE OPERATION

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
5. Activities resulting in recognition or appreciation from others.
9. Activities involving processes, methods, or machines.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

3. Planning and directing an entire activity.
4. Dealing with people.
6. Working under pressure.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Coordinating, Analyzing
PEOPLE	☐	■	☐	– Supervising
THINGS	☐	■	☐	– Driving/Operating

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.
B Both: inside and outside.
6. Hazards.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low 5	4	to 3	2	High 1
G – General				2	
V – Verbal			3 – 2		
N – Numerical			3 – 2		
S – Spatial				2	
P – Form Perception			3 – 2		
Q – Clerical Perception			3		
K – Motor Coordination			3		
F – Finger Dexterity		4 – 3			
M – Manual Dexterity			3		
E – Eye-Hand-Foot Coordination			3		

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **5**.

Workers apply logical thinking and technical knowledge to operate airplanes, ships, or boats. They solve practical problems and make decisions based on abstract and concrete variables such as knowledge of international transportation laws and operating procedures, and radio transmitters.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

A – To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

T – Special training programs at technical schools.
NFT – Some occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 2 years up to and including 10 years (SVP 7, 8).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

Important Courses

- Algebra/Geometry.

Helpful Courses

- Geography, Earth/Space Science.

OCCUPATIONS IN AIR AND WATER VEHICLE OPERATION

Airplane Pilot	196.263-010	Master, Ship	197.167-010
Airplane Pilot, Commercial	196.263-014	Mate, Ship	197.133-022
Captain, Fishing Vessel	197.133-010	Motorboat Operator	411.663-010
Check Pilot	196.263-022	Quartermaster	911.363-014
Helicopter Pilot	196.263-038	Test Pilot	196.263-042
Instructor, Flying 1	196.223-010	Tugboat Captain	197.133-030

CRAFT TECHNOLOGY

Craft technology is highly skilled custom hand and machine work requiring mastery of a process or technique. Food preparation is also included in this group. Industries such as construction and printing employ workers in this group. Some workers provide mechanical services to people and businesses. Large restaurants hire some of these workers to oversee food preparation.

WORK PERFORMED

What would you do as a worker in this group?

You would select and use the tools, materials, and methods needed to make, repair, install, or construct something. You would do one or more of the following tasks.

- Plaster a new home.
- Install the plumbing in a building under construction.
- Set up and operate a metal lathe to make a part for a motor.
- Build custom cabinets and furniture.
- Install the wiring in a building.
- Lay bricks to construct walls and partitions.
- Repair car or aircraft engines.
- Make and tune pipe organs.
- Plan and oversee meal preparation in an exclusive restaurant.
- Repair, adjust, or replace parts in office machines.

A telephone repairer provides services to residential and commercial customers.

Inland Steel Company

Would you like to learn how to set up and operate this metal lathe?

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Know the uses of tools, materials, and methods for a trade or craft.
- Perform work tasks to meet strict standards of accuracy.
- Move the eyes, hands, and fingers to work with hand tools, operate machines, or do fine handiwork.
- Use arithmetic to figure dimensions with accuracy.
- Picture objects from blueprints and read scale drawings.
- See slight differences in shapes or surfaces to detect flaws.

Experience in the use of the trade's tools and materials helps this bricklayer create an intricate building design.

CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you repaired a lamp or extension cord? Do you like working with electrical equipment?
- Have you taken courses in machine shop or cabinet making? Do you like these types of work?
- Have you helped build or repair a house or barn? Do you like this kind of work?
- Have you customized or repaired a car or other vehicle? Do you like mechanical work?
- Have you built or put together a complicated toy which required assembling parts in a certain manner? Do you like doing tasks that require careful attention to accuracy?
- Have you planned and prepared a meal for a group? Do you like to cook?

Department of Labor

Would you be willing to serve several years of apprenticeship to develop the skills of a mechanic?

PREPARATION

How can you prepare for and enter this kind of work?

High school courses in math, general science, home economics, and industrial arts prepare students for this kind of work well. Vocational and technical schools offer training for many jobs in this group. Apprenticeships and on-the-job training are also available. Training requires two to five years, depending upon the craft or trade.

Some people learn these jobs by starting as helpers and working with experienced workers. Some employers train workers to install or repair equipment. Federal and state agencies also sponsor training for some jobs in this group.

Many chefs learn the trade by working as cooks. Apprenticeship programs, technical schools, and large restaurants sometimes offer formal training for these jobs.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Some construction workers are employed for years by a single contractor. Others must seek new employment after each project is completed. Many people prefer construction work because it permits them to be outdoors. However, the weather and the season affect these jobs.

Some craft workers have their own businesses such as cabinet shops, or car repair garages. A few become construction contractors.

Many workers in this group must wear safety glasses, hard hats, or other protective devices.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
9. Activities involving processes, methods, or machines.
10. Activities involving working on or producing things.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.
O Outside.
B Both: inside and outside.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Coordinating
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	☐	☐	■	– Precision Working

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
M Medium work.
3. Stooping, kneeling, crouching, and/or crawling.
4. Reaching, handling, fingering, and/or feeling.
6. Seeing.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low to High 5 4 3 2 1
G – General	3
N – Numerical	3
S – Spatial	3 – 2
P – Form Perception	3 – 2
K – Motor Coordination	3
F – Finger Dexterity	3
M – Manual Dexterity	3 – 2

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **4**.

Workers use reasoning along with skills and technical knowledge to repair, process, or make products. They carry out technical instructions presented in written, oral, or diagram form. They deal with practical problems involving concrete variables such as gages, valves, and pumps.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.
A – To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

T – Technical school training or formal apprenticeship program.
V – Vocational courses in home economics or trade or industrial fields.

Training Time

Occupations in this group may require from over 2 years up to and including 10 years (SVP 7, 8).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

OCCUPATIONS IN CRAFT TECHNOLOGY

Air-Conditioning Installer-Servicer, Window Unit	637.261-010
Air-Conditioning Mechanic	620.281-010
Airframe-and-Power-Plant Mechanic	621.281-014
Alteration Tailor	785.261-010
Arc Cutter	816.364-010
Assembler, Metal Building	801.381-010
Automobile-Body Repairer	807.381-010
Automatic-Equipment Technician	822.281-010
Automotive-Maintenance-Equipment Servicer	620.281-018
Automobile Mechanic	620.261-010
Automotive Technician, Exhaust Emissions	620.281-014
Automobile Upholsterer	780.381-010
Biomedical Equipment Technician	719.261-010
Blacksmith	610.381-010
Boatbuilder, Wood	860.381-018
Body Wirer	829.684-014
Boilermaker 1	805.261-014
Boilermaker 2	805.381-010
Bookbinder	977.381-010
Bricklayer	861.381-014
Bricklayer	861.381-018
Bricklayer Supervisor	861.131-010
Cabinetmaker	660.280-010
Cabinetmaker, Supervisor	660.130-010
Cable Installer-Repairer	821.361-010
Cable Splicer	829.361-010
Cable Supervisor	829.131-010
Cake Decorator	524.381-010
Camera Repairer	714.281-014
Carpenter	860.381-022
Carpenter, Bridge	860.381-030
Carpenter, Maintenance	860.281-010
Carpenter, Rough	860.381-042
Carpenter, Ship	860.281-014
Car Repairer	622.381-014
Cement Mason	844.364-010
Central-Office Installer	822.361-014
Central-Office Repairer	822.281-014
Central-Office-Repairer Supervisor	822.131-010
Chef	313.131-014
Compositor	973.381-010
Concreting Supervisor	869.131-014
Conductor, Yard	910.137-022
Construction-Equipment Mechanic	620.261-022
Cook	313.361-014
Customer-Facilities Supervisor	822.131-014
Custom Tailor	785.261-014

Cylinder-Press Operator	651.362-010
Dairy-Equipment Repairer	629.281-018
Die Maker, Bench, Stamping	601.281-010
Dental-Laboratory Technician	712.381-018
Diesel Mechanic	625.281-010
Die Sinker	601.280-022
Dietetic Technician	077.121-010
Dietitian, Clinical	077.127-014
Dietitian, Consultant	077.127-018
Diver	899.261-010
Dressmaker	785.361-010
Drill-Press Set-Up Operator, Single Spindle	606.682-018
Dry-Wall Applicator	842.381-010
Dyer	364.361-010
Electrical-Appliance Servicer	827.261-010
Electrical Repairer	829.281-014
Electrician	824.261-010
Electrician	825.281-014
Electrician	825.381-030
Electrician, Airplane	825.281-018
Electrician, Automotive	825.281-022
Electrician, Locomotive	825.281-026
Electrician, Powerhouse	820.261-014
Electrician Supervisor	829.131-014
Electric-Meter Installer 1	821.361-014
Electric-Meter Repairer	729.281-014
Electric-Meter Tester	821.381-010
Electric-Motor Repairer	721.281-018
Electronic-Organ Technician	828.261-010
Electronic Assembler, Developmental	726.261-010
Electronics Mechanic	828.281-010
Electrotyper	974.381-010
Elevator Constructor	825.361-010
Elevator Repairer	825.281-030
Environmental-Control-System Installer-Servicer	637.261-014
Farm-Equipment Mechanic 1	624.281-010
Field Engineer	828.261-014
Field-Service Representative	621.221-010
Fitter 1	801.261-014
Fixture Maker	600.380-010
Form Builder	693.280-010
Form Builder	860.381-046
Furnace Installer-and Repairer, Hot Air	869.281-010
Furniture Finisher	763.381-010
Furniture Upholsterer	780.381-018
Furrier	783.261-010
Gas-Main Fitter	862.361-014
Gem Cutter	770.281-014
Gemologist	199.281-010
Gunsmith	632.281-010
House Builder	869.281-014
Instrument Maker	600.280-010
Instrument Mechanic	710.281-026
Instrument Repairer	722.281-010
Job Printer	973.381-018
Joiner	860.381-050
Lay-Out Worker	600.281-018
Lay-Out Worker 1	809.281-010
Line Erector	821.361-018
Line Installer-Repairer	822.381-014
Line Maintainer	821.261-014
Line Repairer	821.361-026
Line Supervisor	821.131-014

Line Supervisor	822.131-018
Locksmith	709.281-010
Machine Builder	600.281-022
Machine Repairer, Maintenance	626.281-010
Machine-Shop Supervisor, Tool	600.131-010
Machinist	600.280-022
Machinist, Experimental	600.280-038
Machinist, Marine Engine	623.281-026
Machinist, Wood	669.380-014
Maintenance Machinist	600.280-042
Maintenance Mechanic	620.281-046
Maintenance Mechanic	638.281-014
Maintenance Mechanic Supervisor	638.131-022
Maintenance Mechanic, Telephone	822.281-018
Manager, Dental Laboratory	187.167-090
Manager, Marine Service	187.167-130
Manufacturer's Service Representative	638.261-018
Marble Setter	861.381-030
Mechanical-Maintenance Supervisor	638.131-026
Mechanical-Test Technician	869.261-014
Mechanic, Industrial Truck	620.281-050
Metal Fabricator	619.360-014
Millwright	638.281-018
Mold Maker, Die-Casting and Plastic Molding	601-280-030
Monument Setter	861.361-014
Motorboat Mechanic	623.281-038
Motorcycle Repairer	620.281-054
Neon-Sign Servicer	824.281-018
Office-Machine Servicer	633.281-018
Offset-Press Operator 1	651.482-010
Oil-Burner-Servicer-and-Installer	862.281-018
Oil-Field Equipment Mechanic	629.381-014
Optician	716.280-008
Optician	716.280-014
Optician, Dispensing 1	713.361-014
Ornamental-Iron Worker	809.381-022
Orthotics Technician	712.381-034
Orthotist	078.261-018
Paperhanger	841.381-010
Parts Salvager	638.281-026
Patternmaker, Metal	600.280-050
Patternmaker, Metal, Bench	693.281-018
Patternmaker, Wood	661.281-022
Piano Technician	730.281-038
Piano Tuner	730.361-010
Pinsetter Adjuster, Automatic	829.381-010
Pipe Fitter	862.261-010
Pipe Fitter	862.381-018
Pipe Fitter, Diesel Engine 1	862.361-018
Pipe-Fitter Supervisor	862.131-014
Pipe-Organ Tuner and Repairer	730.361-014
Plasterer	842.361-018
Platen-Press Operator	651.362-018
Plumber	862.381-030
Plumber Supervisor	862.131-018
Press Maintainer	627.281-010
Private-Branch-Exchange Installer	822.381-018
Private-Branch-Exchange Repairer	822.281-022
Proof-Press Operator	651.582-010
Prosthetist	078.261-022
Prosthetics Technician	712.381-038
Public-Address Servicer	823.261-010
Pump Servicer	630.281-018
Radio Mechanic	823.261-018
Refrigeration Mechanic	637.261-026
Reinforcing-Metal Worker	801.684-026
Repairer, Heavy	620.381-022
Rigger	806.261-014
Rocket-Engine-Component Mechanic	621.281-030
Rug Repairer	782.381-018
Sample Stitcher	785.361-018
Saw Filer	701.381-014
Scientific Glass Blower	006.261-010
Service Mechanic, Compressed Gas Equipment	630.281-034
Sheet-Metal Worker	804.281-010
Shipfitter	806.381-046
Shipwright	860.381-058
Shoe Repairer	365.361-014
Shop Tailor	785.361-022
Signal Maintainer	822.281-026
Small-Engine Mechanic	625.281-034
Sous Chef	313.131-026
Statistical-Machine Servicer	633.281-030
Station Installer-and-Repairer	822.261-022
Steeple Jack	869.381-030
Stereotyper	974.382-014
Stonecutter, Hand	771.381-014
Stonemason	861.381-038
Street-Light Servicer	824.381-010
Structural-Steel Worker	801.361-014
Stucco Mason	842.381-014
Superintendent, Local	952.137-018
Supervisor, Aircraft Maintenance	621.131-014
Supervisor, Carpenters	860.131-018
Supervisor, Engine-Repair	625.131-014
Supervisor, Garage	620.131-014
Supervisor, Machine Setter	619.130-034
Supervisor, Machining	669.130-022
Supervisor, Press Room	651.130-010
Supervisor, Printing-Shop	659.130-010
Supervisor, Reinforced-Steel-Placing	801.134-010
Supervisor, Structural-Steel Erection	809.131-018
Taximeter Repairer	710.281-038
Terrazzo Worker	861.381-046
Tile Setter	861.381-054
Timber Framer	869.381-034
Tool-and-Die Maker	601.280-046
Tool-and-Die Supervisor	601.130-010
Tool Grinder 1	701.381-018
Tool-Machine Set-Up Operator	601.280-054
Tool Maker	601.280-042
Tool Maker, Bench	601.281-026
Tractor Mechanic	620.281-058
Trouble Shooter 2	821.261-026
Truck-Body Builder	807.281-010
Tune-Up Mechanic	620.281-066
Upholstery Repairer	780.684-122
Variety-Saw Operator	667.682-086
Water-and-Sewer-Systems Supervisor	862.137-018
Web-Press Operator	651.362-030
Welder, Arc	810.384-014
Welder-Assembler	819.381-010
Welder, Combination	819.384-010
Welder, Experimental	819.281-022
Welder-Fitter	819.261-010
Welder, Gas	811.684-014

05.06 **WTG**

SYSTEMS OPERATION

Systems operation is the control and care of equipment in a mechanical system. The system may create and distribute electricity, heat and cool a building, or treat and distribute water. Jobs in this group are found in oil fields, refineries, utility companies, and large buildings.

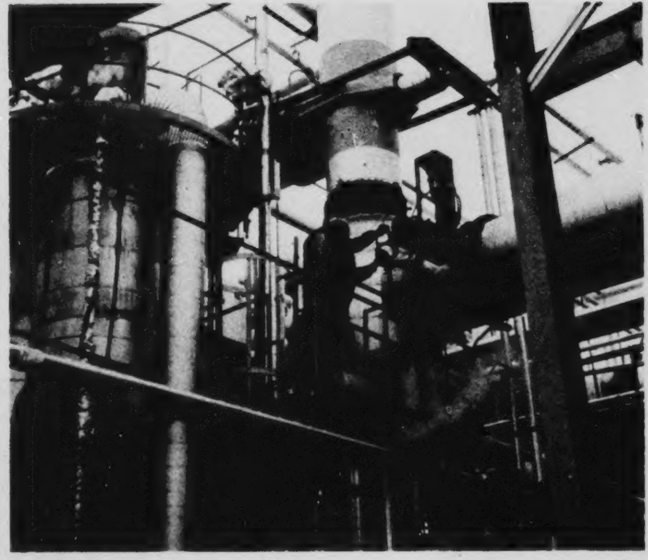
WORK PERFORMED

What would you do as a worker in this group?

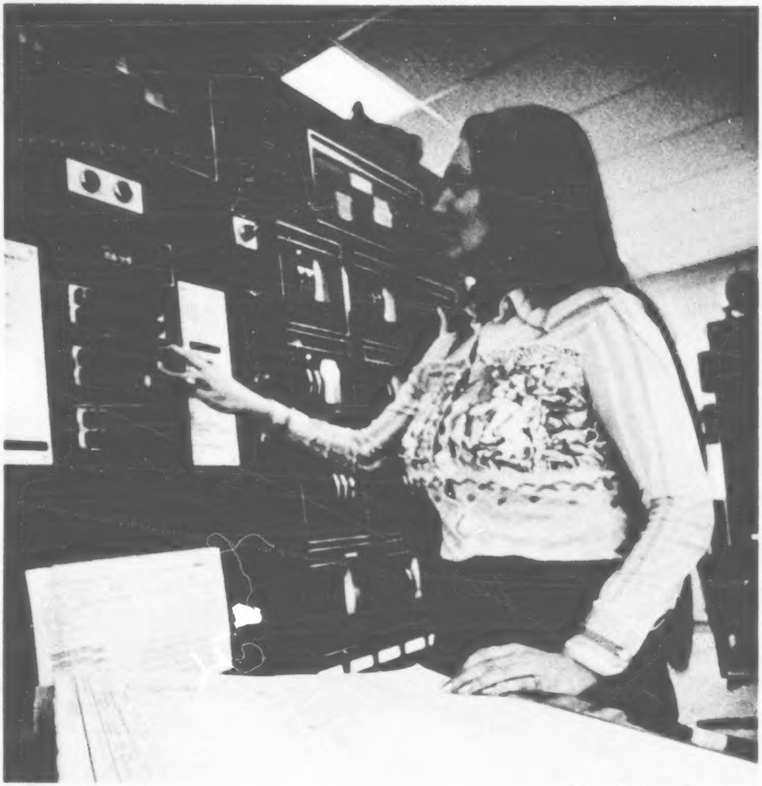
You would operate or control the equipment in an entire system or direct the work of others. You would do one or more of the following tasks.

- Operate turbines, boilers, and generators to produce electricity.
- Maintain a cooling system to refrigerate rooms in a meat-packing plant.
- Operate equipment in a water treatment plant to purify water.
- Maintain boilers which supply heat or power to a building.
- Plan and direct the work of others.

Koppers



This operator regulates the flow of liquids and gases in an industrial setting.



This substation operator controls the flow of petroleum from the well into a pipeline.

Marathon Oil Company

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Apply the technical principles upon which a process is based.
- Use eyes, hands, and fingers to adjust or repair equipment.
- Picture shapes and sizes of objects from a drawing.
- Make quick and correct decisions to operate a system in an efficient way.
- Direct the work of others.
- Use math skills to read and interpret information from meters and gauges.

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CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you taken shop courses? Do you like working with machines?
- Can you use math to figure pressure, weight, and volume of liquids?
- Have you set up and operated a model train? Can you find and correct problems?
- Have you built or repaired a radio or stereo equipment? Can you read electrical or electronic drawings?

Ask your school's boiler operator to show you what he or she does.

PREPARATION

How can you prepare for and enter this kind of work?

Oil or natural gas systems operators usually start as helpers and develop the needed skills. High school courses in math, physics, and chemistry help students prepare for this kind of work. Vocational school courses such as machine shop and mechanical drawing are also helpful.

Jobs in water and sewage treatment plants are usually government positions. These jobs may require taking a civil service test.

Boiler operators usually enter the field through apprenticeship programs which last up to four years. These programs include both classroom instruction and on-the-job training. After gaining experience as an assistant, it is also possible to become a boiler operator. However, this type of preparation generally takes longer.

Operators of generating or distributing systems for electricity usually start as helpers. They may be promoted in one to four years as they become experienced.

Operators of certain types of systems are required to have state licenses. Requirements for these licenses vary from state to state.

Workers in atomic power plants must have special training. Some must be licensed by the Nuclear Regulatory Commission.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Many systems are operated 24 hours a day and require one or more operators to be on duty at all times. Work hours often include weekend and holiday duty.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
9. Activities involving processes, methods, or machines.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
3. Planning and directing an entire activity.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Coordinating
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	☐	■	☐	– Operating/Controlling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
M Medium work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.
O Outside.
B Both: inside and outside.
5. Noise and vibrations.
6. Hazards.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low 5	4	to 3	2	High 1
G – General			3		
V – Verbal			3		
N – Numerical			3		
S – Spatial		4 –	3		
Q – Clerical Perception		4 –	3		
K – Motor Coordination		4 –	3		
M – Manual Dexterity		4 –	3		

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **3-4.**

SYSTEMS OPERATION WTC 05.06

Workers use reasoning, technical skills, and knowledge to solve mechanical problems and operate equipment related to such systems as heating, refrigeration, or power. They interpret instructions presented in written, oral, or diagram form. These workers deal with concrete variables such as equipment used for generation and distribution of power, and natural gas flow.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.

A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

T – Technical school courses in machine trades, electricity, and related fields.

V – Vocational courses in the trade and industrial fields; formal apprenticeship programs.

NFT – Some occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 1 year up to and including 10 years (SVP 6, 7, 8).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

Important Courses

- Courses required for the completion of high school.

Helpful Courses

- Geometry/Algebra, Physics, Chemistry.

OCCUPATIONS IN SYSTEMS OPERATION

Auxiliary-Equipment Operator	952.362-010
Boiler Operator	950.382-010
Boiler-Room Helper	950.685-014
Engineer	197.130-010
Firer, High Pressure	951.685-010
Firer, Low Pressure	951.685-014
Firer, Marine	951.685-018
Gager	914.384-010
Gas-Compressor Operator	950.382-014
Gas Dispatcher	953.167-010
Load Dispatcher	952.167-014
Oil Pumper	914.382-010
Petroleum Inspector	222.367-046
Power-Plant Operator	952.382-018
Power-Reactor Operator	952.362-022
Pumper	914.682-010
Pump-Station Operator, Waterworks	954.382-010
Refrigerating Engineer	950.362-014
Stationary Engineer	950.382-026
Stationary-Engineer Supervisor	950.131-014
Substation Operator	952.362-026
Switchboard Operator	952.362-038
Trouble Locator, Test Desk	822.361-030
Turbine Operator	952.362-042
Turbine Operator, Head	952.137-022
Utilities-and-Maintenance Supervisor	899.131-018
Wastewater-Treatment-Plant Operator	955.362-010
Water-Treatment-Plant Operator	954.382-014

05.07 WTC

QUALITY CONTROL

Quality control is inspecting and checking equipment, materials, and products in settings other than factories. Work may involve measuring or testing raw materials to check whether quality standards are met. Workers in this group are employed in such settings as mines, loading docks, quarries, warehouses, oil fields, and construction sites.

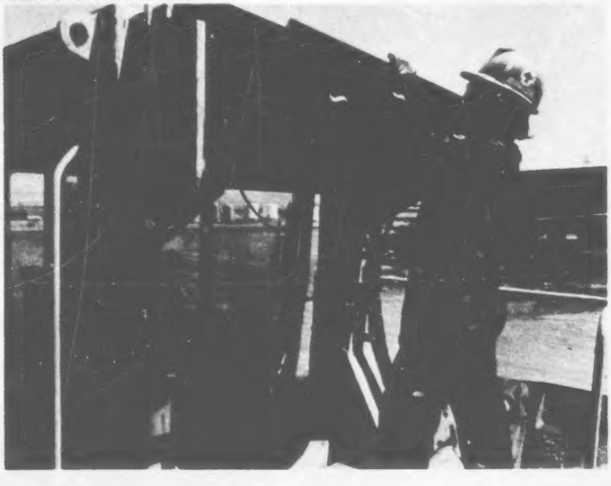
WORK PERFORMED

What would you do as a worker in this group?

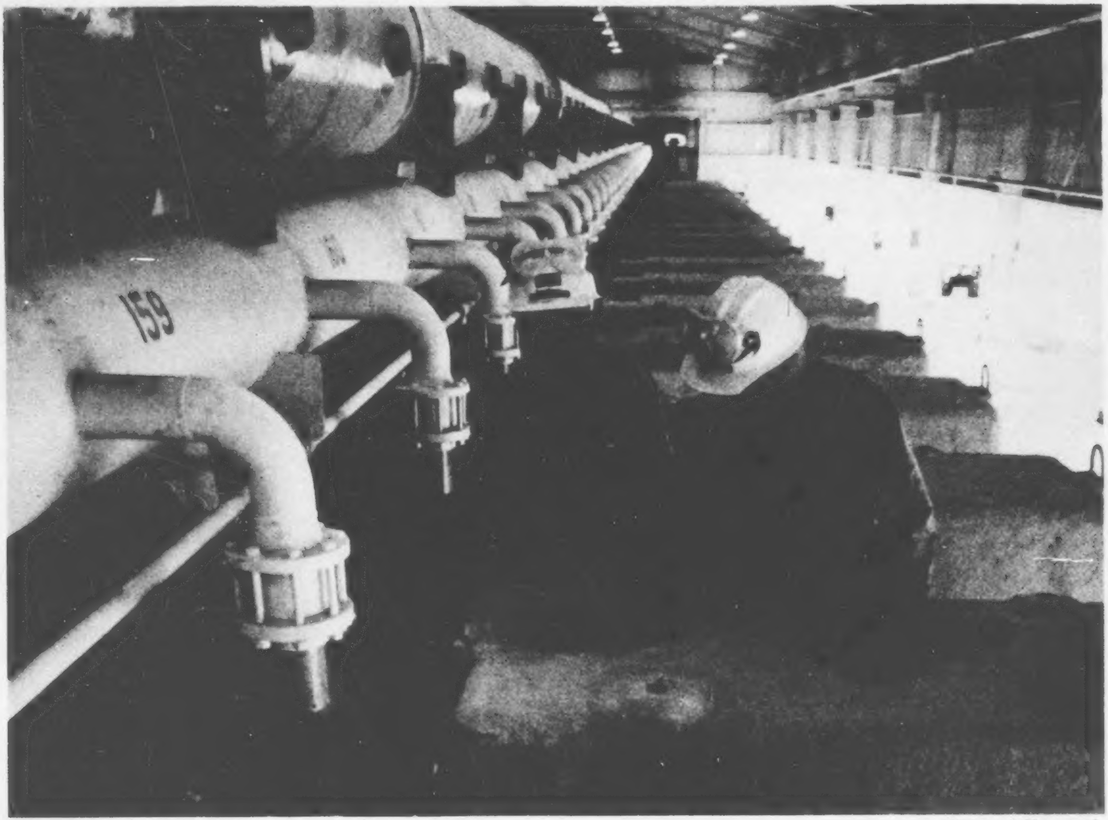
You would examine materials and products to see that quality standards are maintained. You would use measuring tools and testing equipment in some cases. You would perform one or more of the following tasks.

- Inspect railroad freight cars to see what repairs are needed.
- Inspect and grade coal according to its size or to the amount of impurities it contains.
- Inspect cars at a road safety checkpoint.
- Inspect elevators to discover safety hazards.
- Estimate the nature and cost of car repairs in an automobile service department.
- Inspect road construction materials to see that state or contract standards are met.

Utah International Inc.



Large companies employ equipment inspectors to insure the workers' safety.



Diamond Shamrock

As a petroleum inspector, you would inspect samples of crude oil for quality.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Use knowledge of a product, process, or material to judge quality and workmanship.
- Use the eyes, hands, and fingers to handle measuring and testing instruments or tools.
- Write clearly to keep records and make reports.
- Read and apply blueprints, diagrams, or set standards.

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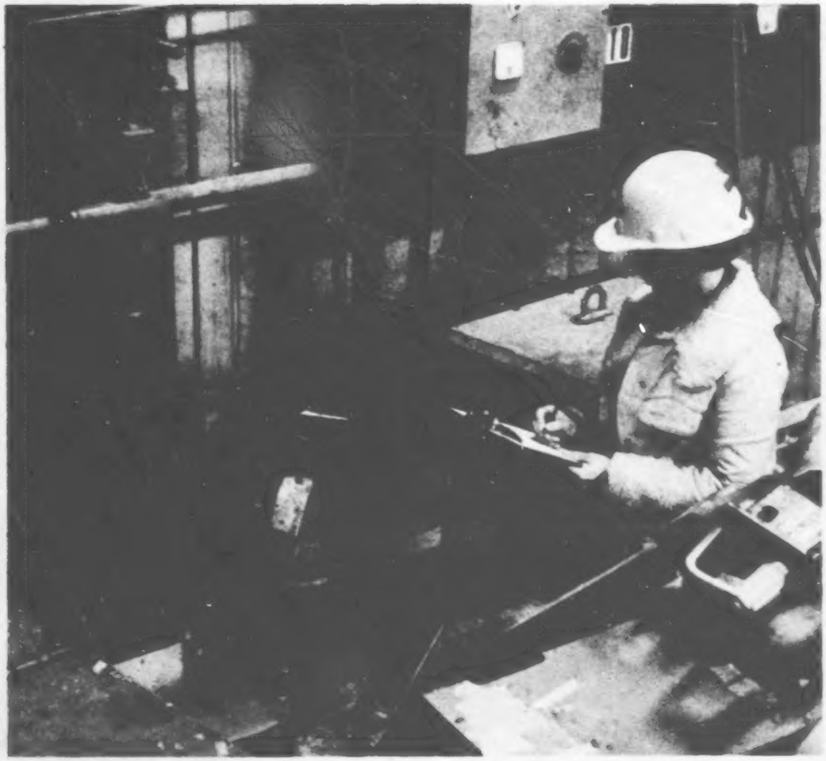
05.07 WTC QUALITY CONTROL

CLUES

Do you have or can you develop these skills, abilities, and interests?
Your answers to the following questions will help you decide.

- Have you had courses in mechanical drawing? Can you read blueprints and diagrams?
- Have you put models together? Did you have to measure and fit small parts together? Can you follow detailed directions?
- Have you taken courses such as woodworking, metalworking, sewing, or cooking? Do you notice small differences in sizes, shapes, or textures?
- Have you noticed the change in sound when a car or household appliance is not working properly? Do you like to find out what is wrong?
- Have you checked cars, appliances, or furniture for defects before buying? Do you notice small details?



This electrical inspector keeps a record of identified safety violations to later write an accurate report.

PREPARATION

How can you prepare for and enter this kind of work?

Some jobs in this group require the ability to read blueprints. High school or vocational courses in shop or mechanical drawing are helpful in developing this skill. A few jobs require experience as a worker in order to judge the quality of the products or materials involved. Most workers receive on-the-job training in order to learn inspection tasks.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Quality control workers usually are paid a set wage rather than being paid by the number of inspected items. Working conditions are the same as for other workers in this setting. These conditions may include dust, noise, and risk of physical injury.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
3. Activities of a routine, definite, organized nature.
9. Activities involving processes, methods, or machines.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Coordinating
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	☐	☐	■	– Precision Working

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
3. Stooping, kneeling, crouching, and/or crawling.
4. Reaching, handling, fingering, and/or feeling.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.
O Outside.
B Both: inside and outside.
5. Noise and vibrations.
6. Hazards.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	**Levels**				
	Low		to		High
	5	4	3	2	1
G – General			3		
N – Numerical		4 –	3		
S – Spatial			3		
P – Form Perception			3		
M – Manual Dexterity		4 –	3		

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **4**.

Workers use reasoning and technical knowledge to inspect manufactured products. They carry out instructions in written, oral, or diagram form. They deal with practical problems involving concrete variables such as testing equipment, inspection standards, and blueprints.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.

A – To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

T – Technical school courses in the mechanical or technical fields.

NFT – Some occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 6 months up to and including 10 years (SVP 5, 6, 7, 8).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- ● Courses required for the completion of high school.

OCCUPATIONS IN QUALITY CONTROL

Airplane Inspector	**621.261-010**
Automobile-Repair-Service Estimator	**620.261-018**
Automobile Tester	**379.364-010**
Bridge Inspector	**869.287-010**
Car Inspector	**910.667-010**
Electrical Inspector	**168.167-034**
Elevator Examiner-and-Adjuster	**825.261-014**
Gravel Inspector	**869.281-010**
Inspector, Aircraft Launching and Arresting System	**806.264-014**
Inspector, Floor	**609.361-010**
Inspector, Tool	**601.281-022**
Log Scaler	**455.487-010**
Outside Production Inspector	**806.281-046**
Petroleum Inspector	**222.367-046**
Railroad-Car Inspector	**910.387-014**
Test Driver 2	**806.283-010**
Water-Quality Tester	**539.367-014**
Way Inspector	**910.367-030**

05.08 WTG

LAND VEHICLE OPERATION

Land vehicle operators drive freight hauling vehicles or supervise others who do. Railroad companies, trucking firms, and delivery services employ workers in this group. Companies which own and operate freight carriers for their own use also hire these workers. Jobs in this group are scattered throughout the country.

WORK PERFORMED

What would you do as a worker in this group?

ARMCO Steel Corporation

Skillful driving and nighttime delivery help avoid the traffic problems this prefabricated structure could create.

You would drive a truck or operate a railroad locomotive or other land vehicle to transport products. To safely operate the vehicle, you would watch your surroundings carefully. You would work controls to guide the vehicle and regulate its speed. You would watch your instrument panel to make sure the vehicle is operating properly.

Your duties would include one or more of the following tasks.

- Inspect a truck to check whether it is properly loaded and in good running condition.
- Drive a truck to pick up and deliver products or supplies either locally or over long distances.
- Obtain receipts and maintain trip records to show that materials have been hauled and delivered.
- Operate a locomotive to haul freight from one city to another.
- Move railroad cars within a railroad yard or industrial plant.
- Operate a tow truck to transport wrecked or disabled vehicles.
- Drive a specially marked car behind a wide load to warn others.
- Drive a hearse in a funeral procession.

Locomotive engineers inspect their vehicles after each run to detect damaged or defective equipment.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Operate a transport vehicle and qualify for a chauffeur's license or other required credentials.
- Understand and follow federal, state, and local traffic rules.
- Recognize a vehicle's malfunction by sound or other indications.
- Judge distances and relationships of objects in space.
- Move eyes, hands, and feet together to operate levers, push pedals, and steer the vehicle.
- Keep records, collect money, make change, and prepare reports.
- Withstand the strain of driving in traffic and for hours at a time.

Truck drivers must be able to follow regulations and keep accurate records on the freight they transport.

Workers in this group are usually required to pass a driving test using the vehicle to be driven on the job.

CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Do you often read automotive or trucking magazines? Do you enjoy reading this type of material?
- Have you completed a course in driver's education? Do you have a driver's or chauffeur's license?
- Have you driven much in heavy traffic? Does it bother you?
- Have you owned or operated a model train layout? Do you like to read about trains and railroads?
- Have you driven in a bicycle rodeo, car rally, or over a vehicle obstacle course? Did you receive a good score?
- Have you driven a car pulling a trailer? Could you back it safely into a narrow space?
- Have you filled out forms to order something from a mail order catalog? Can you understand and complete such forms correctly?

PREPARATION

How can you prepare for and enter this kind of work?

Most states require all truck drivers to have a chauffeur's license. Specific requirements vary from state to state. These licenses usually require applicants to pass physical, written, and driving tests. Knowledge of traffic laws and some truck driving experience help prepare workers for these jobs. Some training may be taken in high school and vocational schools.

The U. S. Department of Transportation sets standards for truck drivers traveling from state to state. These truck drivers must have good hearing, 20/40 vision with or without glasses, and normal blood pressure. Although some exceptions are made for handicapped workers, drivers usually must have full use of arms and legs. These truck drivers must take a written test on the motor carrier safety rules of the U. S. Department of Transportation. They must also pass a driving test using the type of truck they will drive on the job. A good driving record is also required. Some firms hire only drivers with several years of long-distance trucking experience.

Requirements for local drivers vary with the type of truck driven and the employer's business. The physical requirements are similar to those set for long haul truck drivers. Most firms want workers with good driving records. New workers may learn by riding with a veteran driver. Some firms have classes on general duties, operating and loading trucks, and company rules, forms, and records.

Experienced engineer helpers (locomotive firers) are usually promoted to locomotive engineer. Promotion is made according to seniority. Helpers ride with engineers and learn to inspect locomotives and check the gages. They also learn to watch for signals and track obstructions. Applicants must have good hearing, vision, and color perception.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Long-distance truck drivers may spend days or weeks at a time away from home. Their work often includes driving at night. The noise, rough ride, and heavy traffic may cause physical or nervous strain. Advancement in truck driving is limited. Some drivers become dispatchers or managers. Others with business ability may buy and operate their own trucks.

Locomotive engineers often work nights and weekends. They may operate a train to a distant terminal one day and return the next. They may spend two or three nights a week away from home.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
3. Activities of a routine, definite, organized nature.
9. Activities involving processes, methods, or machines.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

8. Making decisions using standards that can be measured or checked.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	■	☐	☐	– Comparing
PEOPLE	■	☐	☐	– Taking Instructions/ Helping
THINGS	☐	■	☐	– Driving/Operating

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
M Medium work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.
B Both: inside and outside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

LAND VEHICLE OPERATION WTC 05.08

Aptitudes	Levels				
	Low		to		High
	5	4	3	2	1
G – General			3		
S – Spatial			3		
K – Motor Coordination			3		
M – Manual Dexterity			3		
E – Eye-Hand-Foot Coordination			3		
C – Color Discrimination		4			

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 4.

Workers use personal judgment and mechanical skills to operate motor vehicles such as trucks and locomotives. They carry out freight delivery instructions presented in written, oral, or diagram form. They deal with problems involving concrete variables such as traffic laws, vehicle controls, and freight loading.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

NFT – Some occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 1 month up to and including 1 year (SVP 3, 4, 5).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for the completion of high school.

OCCUPATIONS IN LAND VEHICLE OPERATION

Ambulance Driver	913.683-010
Coin Collector	292.483-010
Concrete-Mixing-Truck Driver	900.683-010
Cnductor, Yard	910.137-022
Deckhand	911.687-022
Dump-Truck Driver	902.683-010
Escort-Vehicle Driver	919.663-022
Firer, Locomotive	910.363-010
Garbage Collector Driver	905.663-010
Hostler	909.663-010
Liquid-Fertilizer Servicer	906.683-014
Locomotive Engineer	910.363-014
Motor Operator	910.683-014
Newspaper-Delivery Driver	292.363-010
Tank-Truck Driver	903.683-018
Telephone-Directory-Distribution Driver	906.683-018
Tow-Truck Operator	919.663-026
Tractor-Trailer-Truck Driver	904.383-010
Truck Driver, Heavy	905.663-014
Truck Driver, Light	906.683-022
Van Driver	905.663-018
Yard Engineer	910.363-018

05.09 WTC

MATERIALS CONTROL

Materials control is the shipping, receiving, and storing of materials and products. Workers count the products, keep records, and make schedules to control the flow of materials. Firms which make, sell, distribute, or receive large quantities of materials or products employ these workers. Jobs in this group are also found in hospitals and government agencies.

WORK PERFORMED

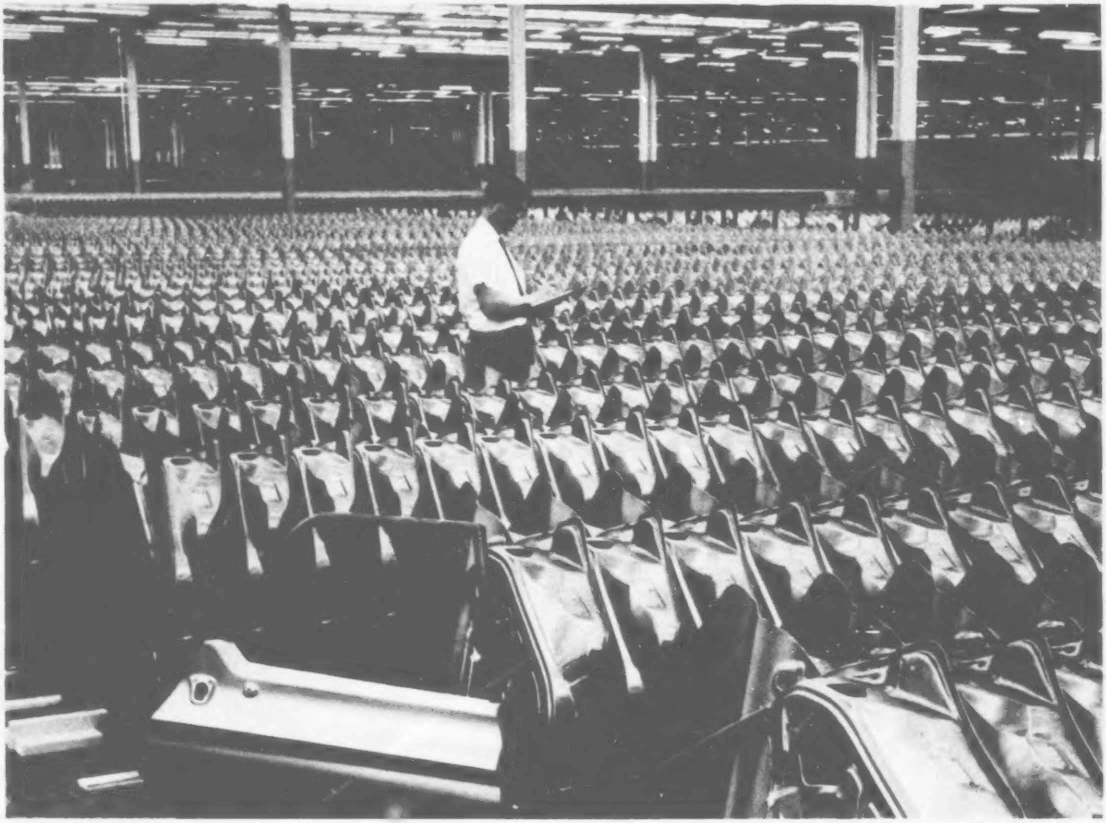
What would you do as a worker in this group?

You would have direct contact with materials and products to ship, receive, or store them. You would perform one or more of the following tasks.

- Count or weigh items to check the accuracy of invoices.
- Unpack and place products on shelves.
- Issue tools, parts, and equipment to workers.
- Count and record items in a warehouse or stockroom.
- Collect tally cards from production machines and record information.
- Pack and ship items according to purchase orders received.

Western Electric

Would you enjoy counting items to check the accuracy of invoices?



Chrysler

To prepare these car doors for shipment, you would need to use math and record keeping skills.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Use basic math skills to keep records or take inventory.
- Use hands and fingers to pack, unpack, or sort materials or products.
- Check materials received against invoices to spot errors.
- Lift, move, or handle heavy or bulky materials or products.

CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you taken industrial arts or shop courses? Did you learn how to issue, store, and care for tools?
- Have you been an equipment manager for a sports team? Did you keep records as well as issue and collect the equipment?
- Have you worked as a stock clerk in a store? Did you unpack cartons and place items on shelves? Did you count or keep records of items?

Department of Labor

Shipping checkers are sometimes required to work in a cold environment.

PREPARATION

How can you prepare for and enter this kind of work?

Basic reading, writing, and math skills are required for jobs in this group. Most workers learn specific tasks and procedures through on-the-job training. As workers gain experience, they are assigned more difficult tasks and duties.

Workers who issue tools and equipment may need knowledge about care and use. Employers often select workers who have experience in using the equipment.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Many jobs in this group require workers to be on their feet a large part of the workday. Most of the work is done indoors. However, some jobs involve working on loading platforms, in storage yards, or in cold storage rooms.

Some workers must learn to operate equipment to move heavy or bulky items.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
2. Activities involving business contact.
3. Activities of a routine, definite, organized nature.
9. Activities involving processes, methods, or machines.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

4. Dealing with people.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

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05.09 WTC MATERIALS CONTROL

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	■	☐	– Compiling
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
M Medium work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	**Levels** Low 5	4	to 3	2	High 1
G – General			3		
V – Verbal			3		
N – Numerical			3		
Q – Clerical Perception			3		
M – Manual Dexterity		4 – 3			

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **3-4.**

Workers use reasoning and personal judgment to ship, receive, store, and inventory products and materials. They carry out instructions presented in written, oral, or diagram form. They deal with practical problems involving concrete variables such as invoices, delivery tickets, and shipping containers.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter most occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

V – Vocational school courses in the general clerical area.
NFT – Most occupations in this group have no related formal education or training programs.

MATERIALS CONTROL WTG 05.09

Training Time

Occupations in this group may require from 30 days up to and including 2 years (SVP 2, 3, 4, 5, 6).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for the completion of high school.

OCCUPATIONS IN MATERIALS CONTROL

Assembler	781.637-010
Cargo Checker	222.367-010
Chart Changer	221.584-010
Checker	369.687-014
Complaint Clerk	221.387-014
Custodian, Athletic Equipment	969.367-010
Dispatcher	849.137-010
Electronics Utility Worker	726.361-010
Estimator, Printing	221.367-014
Inventory Clerk	222.387-026
Job Tracer	221.387-034
Kitchen Clerk	222.587-022
Laboratory Clerk	222.587-026
Laboratory-Sample Carrier	922.687-054
Laborer, Stores	922.687-058
Laundry Worker 3	369.387-010
Linen-Room Attendant	222.387-030
Linen-Room Supervisor	222.137-014
Mailer	222.587-030
Marker	209.587-034
Material Clerk	222.387-034
Material Coordinator	221.167-014
Material Expediter	221.367-042
Meat Clerk	222.684-010
Meter Reader	209.567-010
Order Detailer	221.387-046
Order Filler	222.487-014
Parts-Order-and-Stock Clerk	249.367-058
Pharmacy Helper	074.387-010
Production Coordinator	221.167-018
Receiving Checker	222.687-018
Sales Correspondent	221.367-062
Sample Checker	229.687-010
Shipping and Receiving Clerk	222.387-050
Shipping-and-Receiving Supervisor	222.137-030
Shipping Checker	222.687-030
Sorter-Pricer	222.387-054
Stock Clerk	222.387-058
Stock Clerk, Self-Service Store	299.367-014
Stock Supervisor	222.137-034
Supervisor, Laundry	361.137-010
Tallier	221.587-030
Ticketer	229.587-018
Tool-Crib Attendant	222.367-062
Tool-Crib Supervisor	222.137-046
Warehouse Supervisor	929.137-022
Yard Supervisor	229.137-014

skilled hand and machine work

Skilled hand and machine work, as used here, is custom work requiring some knowledge of processes and techniques. Food preparation is also included in this group.

The construction and mining industries employ workers in this group in settings other than factories. Firms which repair, install, and maintain products also employ these workers. Hotels and restaurants hire workers who prepare foods.

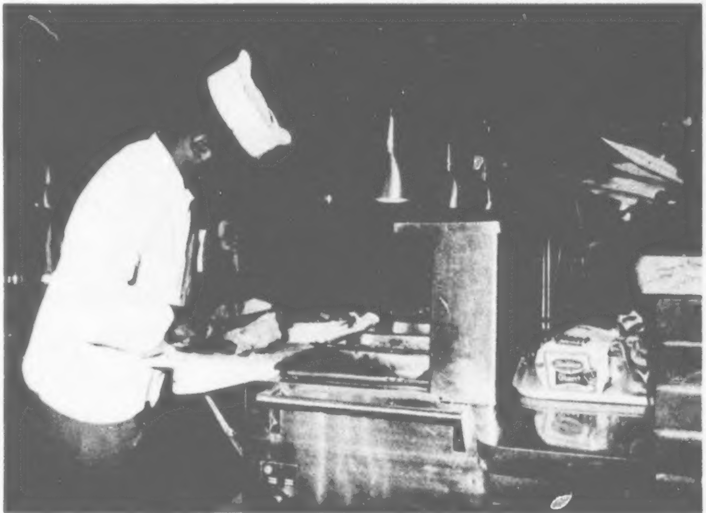
WORK PERFORMED

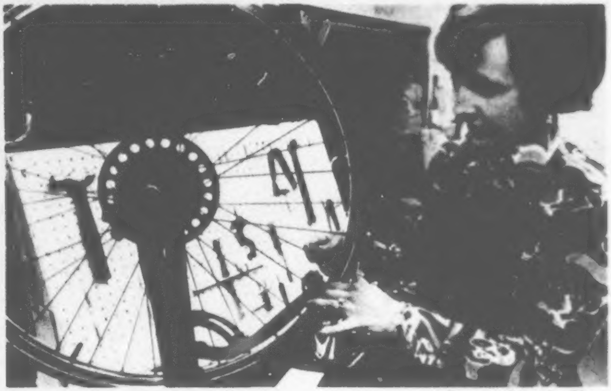
What would you do as a worker in this group?

You would use common tools and methods to make, repair, install, or service something. You would perform one or more of the following tasks.

- Cook food in a hotel or restaurant.
- Install washing machines or other household appliances.
- Install and finish dry walls in a new home.
- Repair or replace damaged metal furniture parts.
- Operate a sound control console during the filming of a motion picture.
- Install mufflers on cars.
- Repair umbrellas, bicycles, and other household items.

As a cook, you would prepare meals designed to feed a large number of people.





Greece Bicycle Shop

Do you like to make things work?

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Identify mechanical and electrical problems and make adjustments.
- Picture objects from blueprints.
- Move eyes, hands, and fingers to use hand tools or operate machines.
- Read and follow recipes and other cooking instructions.
- Use math to measure ingredients or estimate quantities.
- Lift heavy pots and kettles and withstand heat and humidity.

Can you identify and solve mechanical problems?

CLUES

Do you have or can you develop these skills, abilities, and interests?
Your answers to the following questions will help you decide.

- Have you repaired a lamp or extension cord? Do you like working with electrical equipment?
- Have you taken courses in machine shop or woodworking? Do you like this kind of work?
- Have you helped build or repair a house or barn? Do you like this kind of work?
- Have you customized or repaired a car or other vehicle? Do you like mechanical work?
- Have you built or put together a complicated model which required assembling parts in a certain manner? Do you like doing tasks that require accuracy?
- Have you prepared a meal for a group? Do you like to cook?

PREPARATION

How can you prepare for and enter this kind of work?
The amount of education and training required for jobs in this group varies. Some jobs require only on-the-job training. Other jobs require training offered at vocational and technical schools in programs lasting up to two years. Courses in electricity, electronics, chemistry, math, or blueprint reading are helpful for some jobs. High schools and vocational or correspondence schools offer these courses. A few companies provide extensive training for specific types of repair work.

Many cooks begin as kitchen helpers to get the needed experience and training. High school or post high school training in food preparation is helpful. Training programs are offered by the armed forces, some private schools, and some large hotels and restaurants. A few apprenticeships are available.

OTHER CONSIDERATIONS

What else should you know about these jobs?
Working conditions for cooks depend on the size of the restaurant and the kinds of food served. Heavy lifting is required for some jobs.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
3. Activities of a routine, definite, organized nature.
9. Activities involving processes, methods, or machines.
10. Activities involving working on or producing things.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	■	☐	– Compiling
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	☐	☐	■	– Precision Working

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
M Medium work.
H Heavy work.
3. Stooping, kneeling, crouching, and/or crawling.
4. Reaching, handling, fingering, and/or feeling.
6. Seeing

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low to High 5 4 3 2 1
N – Numerical	4 – 3
S – Spatial	3
P – Form Perception	3
K – Motor Coordination	3
F – Finger Dexterity	4 – 3
M – Manual Dexterity	3

05.10 WTC skilled hand and machine work

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **3**.

Workers use personal judgment with skills and knowledge to adjust and repair mechanical items or prepare and cook food. They carry out instructions presented in written, oral, or diagram form. They deal with practical problems involving concrete variables such as hand tools, electrical appliances, and kitchen utensils.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.
A – To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

T – Technical school training.
V – Vocational courses in the trade and industrial fields.
NFT – Some occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 3 months up to and including 4 years (SVP 4, 5, 6, 7).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for the completion of high school.

OCCUPATIONS IN SKILLED HAND AND MACHINE WORK

Adjuster, Electrical Contacts	724.381-010	**Audio Operator**	194.262-010
Air-Conditioning Installer, Domestic	827.464-010	**Automobile-Service-Station Attendant**	915.467-010
Airframe-and-Power-Plant-Mechanic Helper	621.684-010	**Baker**	313.381-010
Airport Attendant	912.364-010	**Baker, Head**	313.131-010
Appliance Repairer	723.584-010	**Baker, Pizza**	313.381-014
Attendant, Lodging Facilities	329.467-010	**Bicycle Repairer**	639.681-010

skilled HAND AND MACHINE WORK WTC 05.10

Blaster	859.261-010
Blaster	931.261-010
Blueprinting-Machine Operator	979.682-014
Boat Outfitter	806.484-014
Brake Repairer	620.281-026
Butcher, Chicken and Fish	316.684-010
Butcher, Meat	316.681-010
Carpet Layer	864.381-010
Carpet-Layer Helper	864.687-010
Casting-Machine Operator	654.382-010
Coin-Machine-Servicer Repairer	639.281-014
Color-Printer Operator	976.382-014
Construction Worker 1	869.664-014
Conveyor-Maintenance Mechanic	630.381-010
Cook	305.281-010
Cook	315.361-010
Cook	315.381-010
Cook, Chief	315.131-010
Cook, Head, School Cafeteria	313.131-018
Cook, Mess	315.371-010
Cook, Pastry	313.381-026
Cook, Railroad	315.381-018
Cook, Short Order 1	313.361-022
Cook, Short Order 2	313.671-010
Cook, Specialty	313.361-026
Cook, Specialty, Foreign Food	313.361-030
Custom Ski Maker	732.281-010
Developer	976.681-010
Drapery Hanger	869.484-014
Dry-Wall Applicator	842.681-010
Electrical-Appliance Repairer	723.381-010
Electrical Repairer	825.381-010
Engraver, Pantograph 1	704.382-010
Exterminator	389.684-010
Exterminator, Termite	383.364-010
Farm-Equipment Mechanic 2	624.381-014
Fence Erector	869.684-022
Fence-Erector Supervisor	869.134-010
Finish Patcher	763.684-034
Fire-Extinguisher Repairer	709.384-010
Floor Layer	864.481-010
Formula-Room Worker	520.487-014
Frame Wirer	822.684-010
Front-End Mechanic	620.281-038
Gas-Appliance Servicer	637.261-018
Gas-Meter Mechanic 1	710.381-022
Glass Installer	865.684-010
Glazier	865.381-010
Household-Appliance Installer	827.661-010
House Repairer	869.381-010
Kitchen Supervisor	310.137-014
Lather	842.361-010
Laundry-Machine Mechanic	629.261-010
Light Technician	962.362-014
Maintenance Repairer, Building	899.381-010
Maintenance Repairer, Factory or Mill	899.281-014
Maintenance-Repairer Helper, Factory or Mill	899.684-022
Make-Up Arranger	973.381-026
Meat Cutter	316.684-018
Mechanic, Aircraft Accessories	621.381-014
Motion-Picture Projectionist	960.362-010
Muffler Installer	807.664-010
Net Repairer	449.664-010
New-Car Get-Ready Mechanic	806.361-026
Offset-Duplicating-Machine Operator	207.682-018
Offset-Duplicating-Machine Operator	651.682-041
Optician, Dispensing 2	299.474-010
Ordnance Artificer	632.261-018
Painter	840.381-010
Painter, Shipyard	840.381-018
Painter, Spray 1	741.684-026
Painter, Transportation Equipment	845.381-014
Pantry Goods Maker	317.684-014
Parking-Meter Servicer	710.384-026
Photograph Finisher	976.487-010
Pinsetter Mechanic, Automatic	638.261-022
Pipeliner	899.684-026
Pot Liner	519.664-014
Printer Operator, Black-and-White	976.682-014
Radio Repairer	720.281-010
Recording Engineer	194.362-010
Repairer, Assembled Wood Products	769.684-038
Repairer, Manufactured Buildings	869.384-010
Repeat Chief	970.361-014
Reproduction Technician	976.361-010
Riveter	800.684-010
Riveter, Pneumatic	800.684-014
Roofer	866.381-010
Roustabout	869.684-046
Salad Maker	317.384-010
Second Cook and Baker	315.381-026
Section-Plotter Operator	194.382-010
Service Manager	185.167-058
Service Supervisor 1	953.137-018
Sewing-Machine Repairer	639.281-018
Shooter	931.361-014
Sider	863.684-014
Sign Erector 2	869.684-054
Sports-Equipment Repairer	732.684-122
Stopping Builder	869.684-058
Supervisor, Blueprinting-and-Photocopy	979.130-010
Supervisor, Extermination	389.134-010
Supervisor, Metal Fabricating	809.130-014
Swimming-Pool Servicer	891.684-018
Taper	842.664-010
Telecine Operator	194.362-018
Television Installer	823.361-010
Television-and-Radio Repairer	720.281-018
Thermal Cutter, Hand 1	816.464-010
Tile Conduit Layer	861.381-062
Transmission Mechanic	620.281-062
Trouble Shooter 1	952.364-010
Typesetter-Machine Tender	650.685-010
Used-Car Renovator	620.684-034
Valve Repairer	630.381-030
Water-Softener Service-and-Installer	862.684-034
Welder, Tack	810.684-010

EQUIPMENT OPERATION

Equipment operation is the use of machinery for excavating, drilling, paving, mining, hoisting, or dredging.

Jobs in this group are found in mining and construction sites, factories, warehouses, and docks.

WORK PERFORMED

What would you do as a worker in this group?

You would move levers, pedals, and wheels to operate and control a piece of heavy equipment. You would perform one or more of the following tasks.

- Operate a bulldozer to excavate or grade a construction site.
- Operate a horizontal earth boring machine to install pipelines.
- Operate an oil drilling rig.
- Drive an asphalt spreader in highway construction.
- Operate a crane to move materials.
- Tend equipment to load freight on ships or barges.
- Operate mining equipment.

As an equipment operator, you might work in town, in the countryside, or underground.

Westmoreland Coal Co.

Bureau of Reclamation, Department of the Interior

These workers operate cranes and other heavy equipment to install a pipeline.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Follow instructions on blueprints, sketches, or work orders.
- Tolerate the vibration and noise of heavy equipment.
- Repeat the same tasks day after day.
- Move eyes, hands, and feet together to use levers, pedals, and other controls.
- Stand or ride for long periods.

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CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you held a summer or part-time job in road construction? Do you like this work?
- Have you driven a van, truck, tractor, or other large motor vehicle? Do you like to drive?
- Have you watched heavy equipment in operation at a construction site? Do you think you would like to operate such equipment?
- Have you visited a mine, quarry, or oil drilling site? Do you like this type of work setting?

Courses in driver's education can help you develop the skills needed to operate the levers, pedals, and wheels of heavy equipment.

PREPARATION

How can you prepare for and enter this kind of work?

Most operators learn their jobs through three-year apprenticeship programs. These programs teach them to operate and maintain a variety of machines. Some private schools offer short courses in heavy equipment operation. Other workers learn to operate equipment through on-the-job training.

Courses in driver's education and auto mechanics are helpful to people considering jobs in this group.

Some experienced operators advance to become supervisors. Others purchase their own equipment and do contract work.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Work in the construction industry is seasonal in some regions of the country. Those who drive machines on public streets and roads must have state motor vehicle licenses. Some equipment operators are employed for years by a single contractor. Others must seek new employment after each project is completed. Workers who can operate a variety of equipment usually can find jobs more easily.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
3. Activities of a routine, definite, organized nature.
9. Activities involving processes, methods, or machines.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	■	☐	☐	– Comparing
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	☐	■	☐	– Operating/ Controlling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
M Medium work.
H Heavy work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

O Outside.
B Both: inside and outside.
5. Noise and vibrations.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low to High 5 4 3 2 1
G – General	3
S – Spatial	3
K – Motor Coordination	3
M – Manual Dexterity	3
E – Eye-Hand-Foot Coordination	4 – 3

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **2-3**.

Workers use personal judgment and mechanical skills to operate equipment and tend machines. They carry out written or oral instructions. They deal with practical problems involving concrete variables such as machine levers, gears, and gages.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter most occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

NFT – Most occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 1 month up to and including 4 years (SVP 3, 4, 5, 6, 7).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

OCCUPATIONS IN EQUIPMENT OPERATION

Asphalt-Paving-Machine Operator	853.663-010
Auxiliary-Equipment Tender	869.665-010
Bridge-or-Gantry-Crane Operator	921.663-010
Bulldozer Operator 1	850.683-010
Coke Loader	921.563-010
Concrete-Paving-Machine Operator	853.663-014
Continuous-Mining-Machine Operator	930.683-010
Conveyor Operator	921.683-026
Cutter-Operator	930.683-014
Derrick Operator	921.663-022
Dinkey Operator	919.663-014
Dragline Operator	850.683-018
Drilling-Machine Operator	930.482-010
Dump Operator	921.685-038
Earth-Boring-Machine Operator	859.682-010
Hoisting Engineer	921.663-030
Loading-Machine Operator	932.683-014
Locomotive-Crane Operator	921.663-038
Long-Wall-Mining-Machine Tender	930.665-010
Miner	850.381-010
Miner 1	939.281-010
Motor-Grader Operator	850.663-022
Operating Engineer	859.683-010
Perforator Operator, Oil Well	931.382-010
Pile-Driver Operator	859.682-018
Power-Shovel Operator	850.683-030
Prospecting Driller	930.382-018
Rigger	921.260-010
Road-Roller Operator	859.683-030
Roof Bolter	930.683-026
Rotary Derrick Operator	930.382-022
Rotary Driller	930.382-026
Sanitary Landfill Operator	955.463-010
Scraper Operator	850.683-038
Septic-Tank Installer	851.663-010
Shuttle-Car Operator	932.682-022
Stevedore 1	911.663-014
Street-Sweeper Operator	919.683-022
Supervisor, Pipe-Lines	862.131-022
Supervisor, Reclamation	850.133-010
Superintendent, Stevedoring	911.137-022
Track-Laying Supervisor	869.134-022
Tractor-Crane Operator	921.663-058
Tractor Operator	929.683-014
Truck-Crane Operator	921.663-062
Utility-Tractor Operator	850.683-046
Well-Driller Operator	859.362-010
Well Puller	930.382-030
Yarding Engineer	921.663-066

05.12 WTC

ELEMENTAL WORK: MECHANICAL

Elemental work: mechanical is lifting and carrying materials, tools, and equipment or keeping equipment and work areas clean. Some workers operate simple machines. Workers in this group usually follow instructions and make few job decisions. Jobs in this group are found in mining, construction, and settings other than factories.

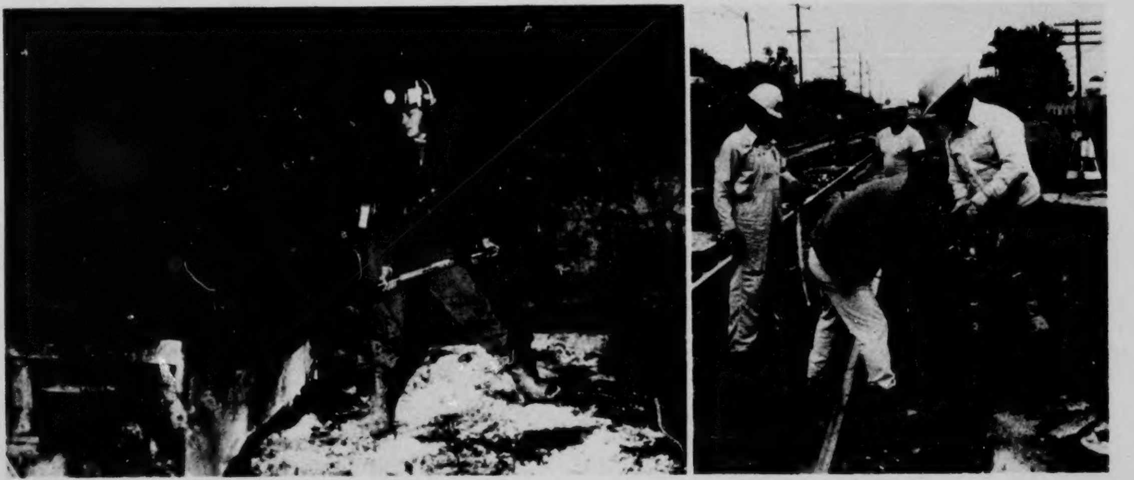
WORK PERFORMED

What would you do as a worker in this group?

You would work according to set procedures and instructions. You would perform one or more of the following tasks.

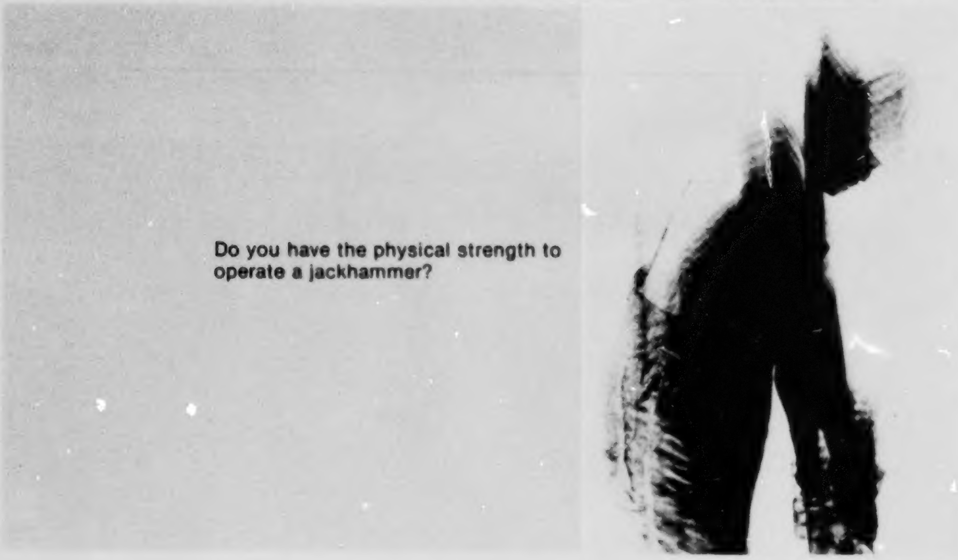
- Use a hand truck to move boxes.
- Operate a freight elevator.
- Grease cars, buses, and trucks.
- Remove excess dirt from a ditch with a shovel.
- Use brooms, vacuum cleaners, or shovels to clean work areas.
- Carry brick and mortar to masons at a construction site.
- Wash, peel, and cut vegetables in a restaurant.
- Operate an addressing machine in a company mailroom.

Westmoreland Coal Co.



Workers in this group may be required to wear safety clothing whether they work underground or outdoors.

ELEMENTAL WORK: MECHANICAL WTC 05.12



Do you have the physical strength to operate a jackhammer?

Associated General Contractors

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Lift and carry heavy objects.
- Use eyes, hands, and fingers to handle, arrange, or adjust materials and equipment.
- Keep records such as checklists.
- Follow spoken or written instructions.

CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you bagged groceries? Do you like jobs requiring little decision-making?
- Have you been responsible for cleaning a house or garage? Do you like cleaning work?
- Have you helped someone move their household goods? Can you lift and carry heavy objects?
- Have you shoveled snow or mowed lawns? Do you like work that keeps you physically active?

05.12 WTC ELEMENTAL WORK: MECHANICAL

Do you like to be physically active in any weather?

PREPARATION

How can you prepare for and enter this kind of work?

This type of work requires only a brief explanation of job duties. When employers hire workers in this group, they mostly consider the applicants' physical ability. Experienced workers are sometimes promoted to supervise less experienced workers.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Some workers in this group are required to wear safety clothing. Employers usually provide training in safety procedures. Work locations are usually inspected to insure that working conditions meet government safety standards.

Workers may secure training to qualify for promotions to machine tending or operating. Workers with a high school education or its equal may qualify for apprenticeship programs. These programs lead to more skilled jobs.

Weather conditions can cause periods of unemployment for workers in industries such as construction.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

ELEMENTAL WORK: MECHANICAL WTC 05.12

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
3. Activities of a routine, definite, organized nature.
9. Activities involving processes, methods, or machines.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	■	☐	☐	– Comparing
PEOPLE	■	☐	☐	– Taking Instructions/ Helping
THINGS	☐	■	☐	– Manipulating

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
H Heavy work.
M Medium work.
3. Stooping, kneeling, crouching, and/or crawling.
4. Reaching, handling, fingering, and/or feeling.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.
O Outside.
B Both: inside and outside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low to High 5 4 3 2 1
S – Spatial	4 – 3
K – Motor Coordination	4 – 3
P – Form Perception	4 – 3
M – Manual Dexterity	3

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **2-1**.

Workers apply common sense to do manual work around machines and equipment. They follow simple written or oral instructions. They deal with concrete variables such as hand trucks, wheelbarrows, and grease guns.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter most occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

V – Vocational school courses in home economics, office, trade and industrial fields.

NFT – Most occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from 30 days up to and including 3 months (SVP 2, 3).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

OCCUPATIONS IN ELEMENTAL WORK: MECHANICAL

Able Seaman	911.364-010
Addressing-Machine Operator	208.582-010
Automobile-Mechanic Helper	620.684-014
Automobile Wrecker	620.684-010
Baggage Handler	910.687-010
Baker Helper	313.684-010
Bartender Helper	312.687-010
Blacksmith Helper	610.684-010
Boatswain	911.131-010
Bottomer 1	932.667-010
Brake Adjuster	620.684-018
Brake Coupler, Road Freight	910.367-010
Brake Holder	932.664-010
Bull-Chain Operator	921.685-014
Caretaker	301.687-010
Carpenter-Labor Supervisor	860.137-010
Car-Retarder Operator	910.382-010
Car-Wash Supervisor	915.137-010
Central-Supply Worker	381.687-010
Chain Offbearer	669.686-018
Choke Setter	921.687-014
Cleaner 2	919.687-014
Cleaner, Commercial or Institutional	381.687-014
Cleaner, Hospital	323.687-010
Cleaner, Housekeeping	323.687-014
Cleaner, Industrial	381.687-018
Cleaner, Laboratory Equipment	381.687-022
Cleaner, Wall	381.687-026
Cleaner, Window	389.687-014
Collator Operator	208.685-010
Company Laborer	939.687-014
Construction Worker 2	869.687-026
Cook Helper	317.687-010
Cook Helper, Pastry	313.687-010
Day Worker	301.687-014
Deli Cutter-Slicer	316.684-014
Dock Hand	891.684-010
Dock Supervisor	891.131-010
Driller Helper	930.666-010
Dumper	921.667-018
Duplicating-Machine Operator 2	207.682-014
Electrician Helper	829.684-022
Elevator Operator, Freight	921.683-038
Elevator-Repairer Helper	825.684-014
Flagger	372.667-022
Food Assembler, Kitchen	319.484-010
Furnace Cleaner	891.687-014
Garage Servicer, Industrial	915.687-014
Garbage Collector	909.687-010
Ginner	429.685-010
Header	911.137-018
Heater Helper	613.685-014
Highway-Maintenance Worker	899.684-014
Housecleaner	323.687-018
Housekeeper	321.137-010
Housekeeper, Home	301.137-010
House Worker, General	301.474-010

ELEMENTAL WORK: MECHANICAL WTG 05.12

Ironer	302.687-010
Janitor	382.664-010
Key Cutter	709.684-050
Kitchen Helper	318.687-010
Kitchen Steward/Stewardess	318.137-010
Laborer	939.687-018
Laborer, Airport Maintenance	899.687-014
Laborer, Construction or Leak Gang	862.684-014
Labor-Crew Supervisor	899.131-010
Laborer, General	909.687-014
Laborer, Hoisting	921.667-022
Laborer, Petroleum Refinery	549.687-018
Laborer, Pipe-Lines	914.687-010
Laborer, Shipyard	809.687-022
Laundry Worker, Domestic	302.685-010
Light-Fixture Servicer	389.687-018
Line-Service Attendant	912.687-010
Log Loader Helper	921.687-022
Lubrication Servicer	915.687-018
Lumber Handler	922.687-070
Machinist Helper, Outside	623.687-010
Maintenance-Mechanic Helper	638.684-018
Marine Oiler	911.584-010
Material Handler	929.687-030
Material-Handling Supervisor	921.133-018
Millwright Helper	638.484-010
Motorboat-Mechanic Helper	623.684-010
Oiler	699.687-018
Ordinary Seaman	911.687-030
Painter Helper, Automotive	845.684-014
Painter Helper, Spray	741.687-014
Photocopying-Machine Operator	207.685-014
Photographic-Machine Operator	207.685-018
Pipe-Fitter Helper	862.684-022
Pond Worker	921.686-022
Porter, Used-Car Lot	915.687-022
Produce Weigher	299.587-010
Quarry Worker	939.667-014
Repairer Helper	630.664-010
Rigging Slinger	921.364-010
Rock-Dust Sprayer	939.687-026

Rotary-Driller Helper	930.684-026
Rug-Dyer Helper	364.687-014
Sample-Taker Operator	931.361-010
Sandblaster	503.687-010
Sandwich Maker	317.684-018
Scullion	318.687-014
Sewer-Pipe Cleaner	899.664-014
Sexton	389.667-010
Shaker Tender	934.685-018
Shipfitter Helper	806.687-050
Signal Maintainer Helper	822.684-018
Sorting-Machine Operator	208.685-030
Stevedore 2	922.687-090
Steward/Stewardess	310.137-018
Street Cleaner	955.687-018
Supervisor, Labor Gang	850.137-014
Supervisor, Labor Gang	899.133-010
Supervisor, Sewer Maintenance	851.137-014
Surveyor Helper	869.567-010
Switch Tender	910.667-026
Tank Cleaner	891.687-022
Thermal Cutter, Hand	816.684-010
Tile Setter	861.684-018
Tire Builder	750.684-022
Tire Recapper	750.685-014
Tire Repairer	915.684-010
Tire-Service Supervisor	915.134-010
Toy Assembler	731.684-018
Truck-Driver Helper	905.687-010
Track Repairer	910.682-010
Truck Supervisor	909.137-018
Van-Driver Helper	905.687-014
Warehouse Supervisor	929.137-018
Warehouse Traffic Supervisor	922.137-026
Wastewater-Treatment-Plant Attendant	955.585-010
Water-Filter Cleaner	954.587-010
Water Tender	599.685-122
Welder Helper	819.687-014
Yard Coupler	910.664-010
Yard Supervisor, Building Materials or Lumber	929.137-030

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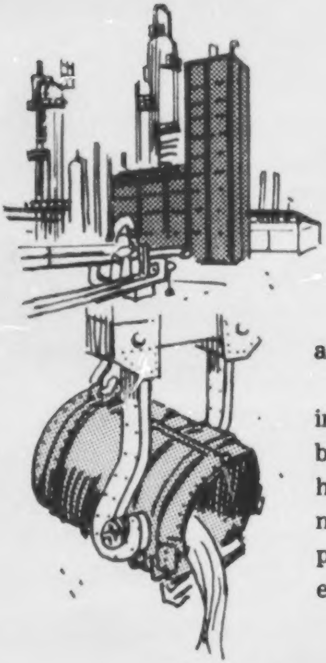
06.

INDUSTRIAL



This is an interest in repetitive, concrete, organized activities in a factory setting.

You can satisfy this interest by working in numerous industries which manufacture goods on a mass production basis. You may enjoy manual work, using your hands or hand tools. Perhaps you may prefer to operate or tend machines. You may like to inspect, sort, count, or weigh products. You may prefer to use your training and experience to set up machines or supervise other workers.

PRODUCTION TECHNOLOGY

Production technology involves a complex knowledge of a product or process to set up and operate production machines. Workers in this group also inspect products thoroughly, do precise hand work, and supervise less skilled workers. Jobs in this group are found in various industries involved in manufacturing and processing.

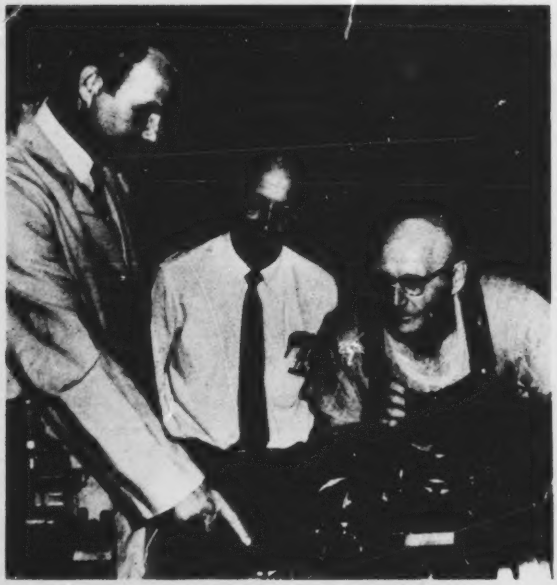
WORK PERFORMED

What would you do as a worker in this group?

You would set up production machines, inspect finished products, or do tasks requiring strict attention to set standards. You would perform one or more of the following tasks.

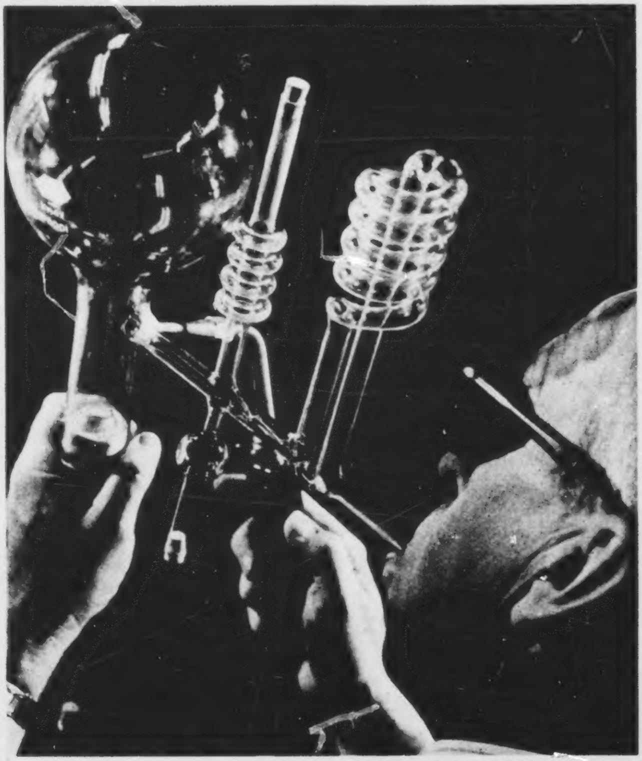
- Set up looms to weave cloth.
- Follow blueprints and diagrams to inspect electronic assemblies.
- Set up and operate a lathe.
- Supervise workers in a manufacturing or processing department.
- Hand polish lenses for optical instruments.

Kennametal, Inc.



Supervisors show how a new piece of equipment can increase production.

The glass blower maintains a steady pressure inside the glass assembly while fusing a flask to the tubing.



Goodyear Tire and Rubber Company

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Set up and operate one or more kinds of production machines.
- Read and understand blueprints and wiring diagrams.
- Use eyes, hands, and fingers to do precise hand work.
- Use math skills to plan schedules and keep production records.
- Detect small differences in shape, size, and texture.
- Explain machine operations to workers.
- Direct and organize the work of others.

CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you taken an industrial arts course? Are you interested in this type of work?
- Have you taken a machine shop course? Can you use micrometers, gages, and other measuring devices?
- Have you taken a course in mechanical drawing? Can you read blueprints?
- Have you repaired or modified a car or motorcycle? Do you like working with hand tools and machines?

PREPARATION

How can you prepare for and enter this kind of work?

One way to enter this field is through an apprenticeship program. Another method of entry is through supervised on-the-job experience. Many workers start as helpers or machine hands. These workers are promoted after they increase their knowledge and skill through experience.

Machine shop or other similar vocational courses provide good background for jobs in this group.

Western Electric

Would you like to learn how to read a printed cirucit?

Organizing the production work of a classroom project would help you test your interest in this group's occupations.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Good safety habits are important to workers in these jobs. Job promotions within a plant are often based on seniority as well as skill.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
9. Activities involving processes, methods, or machines.
10. Activities involving working on or producing things.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

3. Planning and directing an entire activity.
4. Dealing with people.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	■	☐	– Compiling
PEOPLE	☐	■	☐	– Supervising
THINGS	☐	☐	■	– Setting Up

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
M Medium work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.
5. Noise and vibrations.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low 5	 4	 to 3	 2	 High 1
G – General			3		
N – Numerical			3		
S – Spatial			3		
P – Form Perception			3		
K – Motor Coordination			3		
F – Finger Dexterity			3		
M – Manual Dexterity			3		

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **3-4**.

Workers apply technical knowledge to solve practical problems involving the preparation or adjustment of industrial machinery. They interpret a variety of instructions in written, oral, or diagram form. They deal with concrete variables such as hand tools, measuring instruments, and production machines.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

T – Technical school programs in machine trades.
V – Vocational school courses in the trade and industrial fields.
NFT – Some occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 1 year up to and including 10 years (SVP 6, 7, 8).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

OCCUPATIONS IN PRODUCTION TECHNOLOGY

Assembler	710.681-010
Assembler	722.381-010
Assembler, Aircraft, Structures and Surfaces	806.381-026
Assembler, Gold Frame	713.384-010
Baker Supervisor	526.131-010
Bench Hand	735.381-010
Boring-Machine Set-Up Operator, Jig	606.280-010
Boring-Mill Set-Up Operator, Horizontal	606.280-014
Calibrator	710.681-014
Canvas Worker	739.381-010
Card Grinder	680.380-010
Cheese Blender	520.487-010
Chemical Operator 3	559.382-018
Cook, Kettle	526.381-026
Coremaker	518.381-014
Diesel-Engine Tester	625.261-010
Die Setter	612.360-010
Drill-Press Set-Up Operator, Radial	606.380-014
Electronics Inspector 1	726.381-010
Electronics Tester 1	726.281-014
Engine-Lathe Set-Up Operator	604.380-018
Glass Blower	772.681-010
Grinder Machine Setter	603.380-010
Grinder Operator, External, Tool	603.280-010
Grinder Operator, Tool	603.280-018
Grinder Set-Up Operator, Internal 1	603.280-022
Inspection Supervisor	609.131-010
Inspector	559.381-010
Inspector	612.261-010
Inspector, Aircraft Accessories	709.261-010
Inspector, Assemblies and Installations	806.281-022
Inspector, Fabrication	806.361-022
Inspector, Gage and Instrument	601.281-018
Inspector, Mechanical and Electrical	710.381-038
Inspector, Metal Fabricating	619.261-010
Inspector, Motors and Generators	721.361-010
Job Setter	600.380-014
Knitting-Machine Fixer	689.280-014
Loom Fixer	683.260-018
Loom-Fixer Supervisor	683.130-014
Machine Fixer	689.260-010
Machine Operator 1	616.360-018
Machine Setter	616.360-022
Machine Setter	692.260-010
Machine Set-Up Operator	600.380-018
Machine Set-Up Operator, Paper Goods	649.380-010
Machine-Shop Supervisor, Production	609.130-010
Metal Sprayer, Machined Parts	505.380-010
Milling-Machine Operator, Numerical Control	605.380-010
Molder	518.361-010
Nail-Making-Machine Setter	616.460-010
Optical-Instrument Assembler	711.381-010
Packing-House Supervisor	920.137-010
Process Inspector	736.381-018
Refinery Operator	549.260-010
Roll-Tube Setter	613.360-014
Rolling-Mill Operator	613.462-018
Router Set-Up Operator, Numerical Control	605.360-010
Rubber-Goods Cutter-Finisher	690.680-010
Skin Fitter	806.381-054
Solderer	700.381-050
Storage Battery Inspector and Tester	727.381-022
Supervisor	556.130-010
Supervisor	559.132-054
Supervisor	691.130-010
Supervisor, Cutting-and-Sewing Department	780.131-010
Supervisor, Electronics Processing	590.130-010
Supervisor, Feed Mill	529.132-054
Supervisor, Garment Manufacturing	786.132-010
Supervisor, Paint Department	749.131-014
Supervisor, Paper Products	649.130-010
Supervisor, Pipe Finishing	619.130-038
Supervisor, Preparation Department	681.130-010
Supervisor, Preparation Plant	549.131-014
Supervisor, Pulp Plant	539.132-014
Supervisor, Refining	529.130-034
Supervisor, Roving Department	689.130-026
Supervisor, Specialty Food Products	529.137-062
Supervisor, Spinning	682.130-010
Supervisor, Winding and Twisting Department	681.130-014
Tester	529.281-010
Tester, Motors and Controls	721.281-030
Tool-Grinder Operator	603.280-038
Transformer Assembler	820.381-014
Tube Assembler, Electron	725.384-010
Turret-Lathe Set-Up Operator	604.380-026
Turret-Lathe Set-Up Operator, Tool	604.280-022
Watch Repairer	715.281-010

production work

Production work is hand and machine work requiring skills developed through training and experience. Workers in this group also perform a general inspection of products and supervise production workers. Jobs in this group are found in manufacturing and processing plants.

WORK PERFORMED

What would you do as a worker in this group?

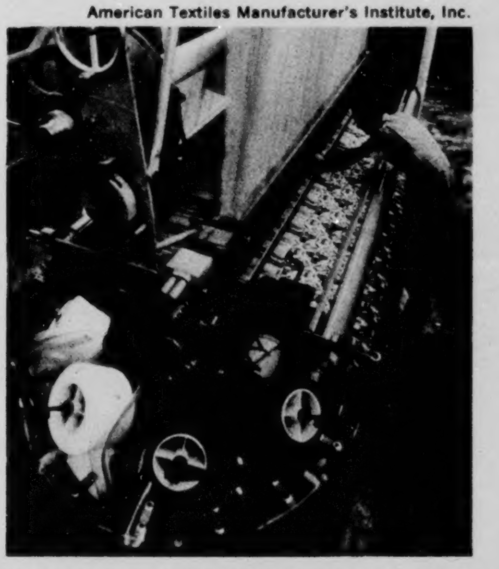
You would use hand and machine skills to complete your work. You would perform one or more of the following tasks.

- Operate a machine to split animal hides into layers.
- Operate a battery of looms to weave cloth.
- Set up and operate a machine to cut threads on nuts and bolts.
- Sew reinforcing patches, ropes, and snaps on tents by hand.
- Set up and operate machines to make paper cartons, napkins, or envelopes.
- Operate automatic machines to weld metal parts together.
- Supervise the work of others.

Inland Steel Company

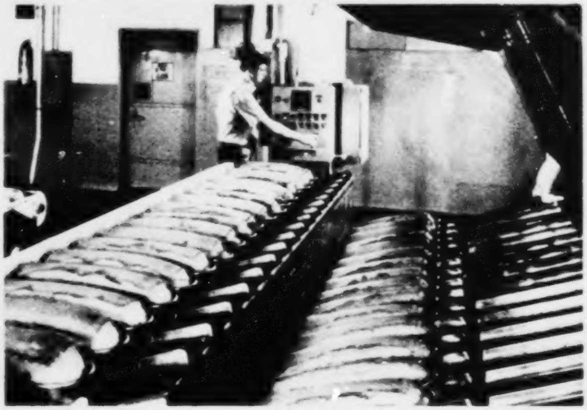
This production supervisor reviews records to check whether production schedules are being met.

American Textiles Manufacturer's Institute, Inc.



The carpet weaver examines the yarn to identify the cause of loom stoppage.

Sewing machine operators generally specialize in a single operation such as attaching belts or collars to the main parts of the garment.



General Foods Corporation

This automatic oven operator, following a set procedure, is about to press a control to depan the loaves.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Understand and apply procedures to set up and operate a production machine.
- Use eyes, hands, and fingers to adjust machine controls.
- Detect differences in shape, size, and texture.
- Follow instructions for meeting product set standards.
- Use math skills for measuring, computing, or record keeping.

CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you read mechanical or automotive design magazines? Are you able to understand the technical articles in them?
- Have you taken courses in math or science? Do you like these classes?
- Have you built a model airplane, car, or bridge? Can you look at drawings or read directions and picture the final structure?
- Have you repaired a radio, television, or amplifier? Have you built such items, using a commercial kit?

PREPARATION

How can you prepare for and enter this kind of work?

Machine shop or other similar vocational courses provide good background for jobs in this group. The common method of entry is through on-the-job training. Many workers start as helpers and work up to more responsible jobs as they gain experience and seniority.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Tasks in these jobs change little from day to day because workers must follow set procedures. Good safety habits are important to people in these jobs.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
3. Activities of a routine, definite, organized nature.
9. Activities involving processes, methods, or machines.
10. Activities involving working on or producing things.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

2. Performing routine tasks.
3. Planning and directing an entire activity.
4. Dealing with people.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	■	☐	– Compiling
PEOPLE	☐	■	☐	– Supervising
THINGS	☐	■	☐	– Operating/ Controlling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
M Medium work.
H Heavy work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.
5. Noise and vibrations.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low 5	4	to 3	2	High 1
G – General			3		
N – Numerical		4 – 3			
S – Spatial		4 – 3			
P – Form Perception			3		
K – Motor Coordination		4 – 3			
F – Finger Dexterity		4 – 3			
M – Manual Dexterity			3		

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **3**.

Workers use personal judgment to set up or operate machinery by following written, oral, or diagram instructions. Some supervise others who perform these tasks. Workers in this group deal with problems involving concrete variables such as using hand tools, adjusting dials, and inspecting products.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.
A – To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

T – Technical school programs in machine trades.
V – Vocational school courses in the trade and industrial fields.
NFT – Some occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 3 months up to and including 4 years (SVP 4, 5, 6, 7).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

OCCUPATIONS IN PRODUCTION WORK

Annealer	504.682-010
Anodizer	500.682-010
Appliance Assembler, Line	827.684-010
Assembler	706.361-010
Assembler	706.684-014
Assembler	710.381-010
Assembler	869.684-010
Assembler 1	723.684-014
Assembler, Aircraft Power Plant	806.381-022
Assembler, Electric Accessories 2	729.384-010
Assembler, Electrical Wire Group	728.384-010
Assembler-Installer, General	806.361-014
Assembler, Internal Combustion Engine	806.481-014
Assembler, Product	706.684-018
Assembler, Subassembly	806.484-010
Assembler, Unit	809.681-010
Back Tender, Paper Machine	534.662-010
Baker	526.381-010
Balancing-Machine Operator	609.462-010
Balloon Maker	752.684-010
Beater Engineer	530.662-010
Bench Hand	520.384-010
Bleacher, Pulp	533.362-010
Blender	540.462-010
Blocker 1	979.682-010
Blower and Compressor Assembler	801.361-010
Book-Sewing-Machine Operator 2	653.682-010
Box Maker, Wood	760.684-014
Box Printer	652.682-010
Brake Operator 1	617.360-010
Brake Operator 2	619.685-026
Brazer, Assembler	813.684-010
Brick-and-Tile-Machine Operator	575.382-010
Buffing-Machine Operator	603.382-010
Bumper Operator	617.682-014
Butcher, All-Round	525.381-014
Buttermaker	529.362-010
Cabinet Assembler	763.684-014
Cable Maker	728.684-010
Candy Maker	529.361-014
Carpet Weaver	683.682-010
Casket Assembler	739.481-010
Casket Liner	780.684-030
Caster	502.482-010
Casting Operator	514.662-010
Cheesemaker Helper	529.682-014
Chemical Mixer	550.485-010
Cigarette Making-Machine Operator	529.685-066
Clicking-Machine Operator	789.382-010
Coal Washer	541.382-010
Cobbler	788.381-010
Coffee Roaster	523.682-014
Coil Connector	721.684-018
Compression-Molding-Machine Operator	556.682-014
Compressor	556.382-010
Concrete-Stone Fabricator	575.461-010
Contour-Band Saw Operator	607.382-010
Control-Panel Operator	546.382-010
Corrugator Operator	641.562-010
Cracker-and-Cooky-Machine Operator	520.482-010
Crude-Oil Treater	541.382-014
Cryolite-Recovery Operator	511.482-014
Cupola Tender	512.662-010
Cut-Off-Saw Operator	667.682-022
Cut-Off-Saw Operator, Metal	607.682-010
Cutter, Hand 1	781.584-014
Cutter, Machine 1	781.684-014
Cutter Operator	699.682-018
Cutting-Machine Operator	640.682-015
Cylinder-Machine Operator	539.362-010
Dairy-Processing-Equipment Operator	529.382-018
Die Cutter	699.682-022
Digester Operator	532.362-010
Dipper	774.684-014
Dough Mixer	520.582-010
Doughnut Maker	526.684-010
Draper Operator	787.682-018
Drawer-In, Hand	683.684-014
Drawing-In-Machine Tender	683.682-018
Drill-Press Operator	606.682-014
Drop-Hammer Operator	610.462-010
Dry Cleaner	362.382-014
Dry-Press Operator	575.662-010
Dye-Range Operator, Cloth	582.582-010
Electrical-Control Assembler	729.684-026
Electric-Motor Winder	721.484-010
Electronics Assembler	726.384-010
Electronics Assembler	726.684-018
Embossing-Machine Operator 1	208.582-014
Embroiderer, Hand	782.684-018
Embroidery-Machine Operator	787.682-022
Extruder Operator	557.382-010
Extruder Operator	614.482-014
Fabricator-Assembler, Metal Products	809.381-010
Film-Casting Operator	559.682-022
Fitter 2	706.684-054
Folding-Machine Operator	649.685-046
Forging-Press Operator 1	611.482-010
Forming-Machine Operator	575.382-014
Fourdrinier-Machine Tender	539.362-014
Frame-Table Operator	669.662-014
Fur Cutter	783.381-010
Fur Finisher	782.381-014
Fur Machine Operator	783.682-010
Fur Nailer	783.684-014
Furnace Charger	512.483-010
Furnace Operator	512.362-014
Furnace Operator	613.462-014
Furniture Assembler	763.684-038
Gang Sawyer, Stone	670.362-010
Glass Cutter	775.684-022
Glass-Lathe Operator	674.382-010
Granulator-Machine Operator	559.382-026
Grinder Operator	521.682-026
Grinder Operator, Production	603.685-062
Grinder Set-Up Operator, Thread	603.482-026
Heading-Saw Operator	667.682-038
Heater	613.362-010

Heater	619.682-022
Heat Treater 2	504.682-018
Heavy Forger	612.361-010
Hosiery Mender	782.684-030
Injection-Molding-Machine Operator	556.382-014
Installer	869.684-026
Jig Fitter	801.684-010
Kettle Operator	558.382-038
Kiln Operator	563.382-010
Ladle Liner	519.684-010
Laser-Beam-Machine Operator	815.682-010
Lay-Out Worker 2	809.381-014
Leather Worker	783.684-026
Machine Assembler	638.361-010
Machine Molder	518.682-010
Maple-Sirup Maker	523.382-014
Manipulator	613.682-010
Marker 1	781.384-014
Mattress Maker	780.684-074
Mender	782.684-042
Mender	787.682-030
Metal Hanger	809.684-030
Numerical-Control-Machine Operator	609.662-010
Oven Tender	526.685-030
Oxygen-Furnace Operator	512.382-010
Oxygen-Plant Operator	552.362-014
Paper-Novelty Maker	794.684-022
Pharmaceutical Operator	559.382-042
Planer Set-Up Operator, Tool	605.282-014
Plastics Fabricator	754.684-042
Plater	500.380-010
Plater, Production	500.365-010
Polishing-Machine Operator	603.682-026
Pony Edger	667.682-050
Powder Worker, TNT	737.684-030
Precision Assembler, Bench	706.681-010
Precision-Lens Grinder	716.382-018
Press Operator, Heavy Duty	617.260-010
Printer-Slotter Operator	659.662-010
Production Supervisor	699.130-010
Pumper	549.362-010
Punch-Press Operator 1	615.482-022
Punch-Press Operator 3	615.682-014
Ripsaw Operator	667.682-066
Riveting-Machine Operator 1	699.482-010
Roller, Primary Mill	613.362-014
Rotor Casting-Machine Operator	502.482-018
Rougher Operator	613.662-014
Router	979.682-026
Rug Cleaner, Hand	369.384-014
Sander, Machine	761.682-014
Scalper Operator	605.682-022
Screen Printer	979.684-030
Screen-Printing-Machine Operator	652.682-018
Sewing-Machine Operator	787.682-046
Shaper, Hand	761.684-038
Shear Operator 1	615.482-034
Sign Writer, Machine	659.682-026
Slasher Tender	582.562-010

Slitting-Machine Operator 2	615.662-010
Smash Hand	683.684-026
Solderer-Assembler	813.684-014
Spaghetti-Machine Operator	690.682-074
Speed Operator	613.362-022
Spotter	362.381-010
Springer	780.684-106
Steel Pourer	502.664-014
Steel-Pourer Helper	502.664-018
Sticher, Special Machine	690.682-078
Sticher, Standard Machine	690.682-082
Still-Pump Operator	549.362-010
Straightening-Press Operator	617.482-026
Stranding-Machine Operator	616.682-034
Stretcher-Leveler Operator	619.582-010
Stone Polisher, Machine	673.382-018
Supercalender Operator	534.682-038
Supervisor	500.131-010
Supervisor	684.137-010
Supervisor	750.130-010
Supervisor	788.131-010
Supervisor	789.132-018
Supervisor 2	559.137-014
Supervisor, Abattoir	525.131-010
Supervisor, Candy	529.130-010
Supervisor, Carton and Can Supply	920.132-014
Supervisor, Cured Meats	525.132-010
Supervisor, Line	619.130-030
Supervisor, Mattress and Boxsprings	780.137-010
Supervisor, Small Appliance Assembly	723.131-010
Supervisor, Toy Assembly	731.131-010
Tanning Drum Operator	582.482-018
Tester, Motor	806.384-026
Threader	685.680-010
Timber-Sizer Operator	665.482-018
Tire Builder, Automobile	750.384-010
TNT-Line Supervisor	559.131-018
Tool Grinder	603.664-010
Trailer Assembler	806.381-058
Treater	549.362-014
Trimmer Sawyer	667.482-022
Trophy Assembler	735.684-018
Tube Bender, Hand 1	709.684-090
Tuber-Machine Operator	690.662-014
Upholsterer	869.684-070
Upholsterer, Inside	780.681-010
Upsetter	611.462-010
Valve Grinder	706.684-098
Vending-Machine Assembler	706.684-102
Warp-Knitting-Machine Operator	685.665-018
Water-Treatment-Plant Operator	551.485-010
Weaver	683.682-034
Weaver, Hand	782.684-062
Weaver, Needle Loom	683.665-010
Welding-Machine Operator, Arc	810.382-010
Welding-Machine Tender	819.685-010
Welding Supervisor	819.131-014
Wire Drawer	614.382-010
Wire Drawer	614.382-014

PRODUCTION CONTROL

Production control means to regulate the quality and quantity of products and materials. Workers in this group inspect, test, weigh, or sort products and materials. Some workers also record data. Jobs in this group are found in manufacturing and processing plants.

WORK PERFORMED

What would you do as a worker in this group?

You would examine or test materials and products according to set procedures. You would perform one or more of the following tasks.

- Inspect glass and plastic lens materials for defects.
- Inspect rolls of yarn and record the number and types of flaws.
- Examine rejected rubber footwear to determine what can be salvaged.
- Inspect metal furniture for flaws.
- Inspect jewelry for size, shape, and defects.
- Check metal toys for paint scratches and operation of moving parts.

Goodyear Tire and Rubber Co.

An inspector in a tire manufacturing plant checks the quality of every tire according to set standards and procedures.

Inspectors perform specialized tasks at this work station to test the quality of these telephone dials.

Western Electric

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Repeat the same tasks over and over according to set procedures.
- Use eyes, hands, and fingers to handle gages and measuring tools.
- Use math skills to count, measure, or keep inspection records.

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06.03 WTC PRODUCTION CONTROL

CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you taken an industrial arts course? Are you interested in this type of work?
- Have you taken a machine shop course? Can you use micrometers, gages, and other measuring devices?
- Have you taken a course in mechanical drawing? Can you read blueprints?
- Have you repaired or modified a car or motorcycle? Do you like working with hand tools and machines?

PREPARATION

How can you prepare for and enter this kind of work?

Machine shop or other similar vocational courses provide good background for jobs in this group. The common method of entry is through on-the-job training. Many workers start as helpers and work up to more responsible jobs as they gain experience and seniority.

Nabisco

These inspectors use different skills and testing methods to control the quality of products.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Good safety habits are very important to workers in these jobs. Job promotions within a plant are often based on seniority as well as skill.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
3. Activities of a routine, definite, organized nature.
9. Activities involving processes, methods, or machines.
10. Activities involving working on or producing things.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

2. Performing routine tasks.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	■	☐	– Compiling
PEOPLE	■	☐	☐	– Taking Instructions/ Helping
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
4. Reaching, handling, fingering, and/or feeling.
6. Seeing.

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WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.
5. Noise and vibrations.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low to High 5 4 3 2 1
G – General	3
S – Spatial	4 – 3
P – Form Perception	3
K – Motor Coordination	4 – 3
F – Finger Dexterity	4 – 3
M – Manual Dexterity	3

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **3.**

Workers use mechanical skills and personal judgment to carry out written or oral instructions dealing with standardized testing and inspection. Workers deal with practical problems involving concrete variables such as measuring instruments and production standards.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter most occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

V – Vocational school courses in drafting.
NFT – Most occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 1 month up to and including 1 year (SVP 3, 4, 5).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for the completion of high school.

OCCUPATIONS IN PRODUCTION CONTROL

Assembler	369.687-010	Inspector, Metal Can	709.367-010
Ampoule Examiner	559.687-010	Inspector, Packaging Materials	920.387-010
Sorter	689.684-010	Inspector, Paper Products	649.367-010
Coating Inspector	514.687-010	Inspector, Slide Fasteners	734.687-062
Cloth Examiner, Hand	781.687-014	Inspector, Surgical Instruments	712.687-026
Cloth Inspector	685.687-010	Inspector, Type	706.687-026
Cloth Tester, Quality	689.384-010	Inspector, Wire	691.367-010
Egg Candler	529.687-074	Laboratory Tester	689.384-014
Electronics Inspector 2	726.684-022	Lumber Sorter	922.687-074
Electronics Tester 2	726.684-026	Machine Tester	706.387-014
Final Inspector	806.687-018	Mailing Machine Operator	208.462-010
Finished-Stock Inspector	763.687-029	Marker	369.687-026
Garment Inspector	789.687-070	Motorcycle Tester	620.384-010
Garment Sorter	222.687-014	Nut Sorter	521.687-086
Grader	669.587-010	Pairer	684.687-010
Grader, Dressed Poultry	529.687-102	Paper Sorter and Counter	649.687-010
Grader, Meat	525.387-010	Photo Checker and Assembler	976.687-014
Inspector	369.687-022	Pulp-and Paper Tester	539.364-010
Inspector	590.367-010	Quality-Control Inspector	579.367-010
Inspector	619.381-010	Quality-Control Inspector	725.687-026
Inspector	732.364-010	Quality-Control Technician	529.387-030
Inspector	739.687-110	Roller-Bearing Inspector	706.687-034
Inspector	769.687-026	Selector	579.687-030
Inspector	776.667-010	Shade Matcher	582.687-022
Inspector	788.384-010	Shipping-and-Receiving Weigher	222.367-058
Inspector 1	619.364-010	Stacking Inspector	684.684-010
Inspector 1	729.387-022	Tablet Tester	559.667-010
Inspector 3	737.367-010	Tire Inspector	750.687-018
Inspector and Sorter	589.387-010	Transmission Tester	806.684-134
Inspector, Eyeglass Frames	713.687-022	Veneer Grader	569.587-010
Inspector, Fabric	789.587-014	Weigher, Alloy	509.687-022
Inspector, General	609.684-010	Yarn Sorter	689.687-086
Inspector, Grain Mill Products	529.387-026		

ELEMENTAL WORK: INDUSTRIAL

Elemental industrial work is routine work requiring little training or experience. Tasks include loading and unloading machines as well as using simple hand tools. Jobs in this group are found in manufacturing and processing plants.

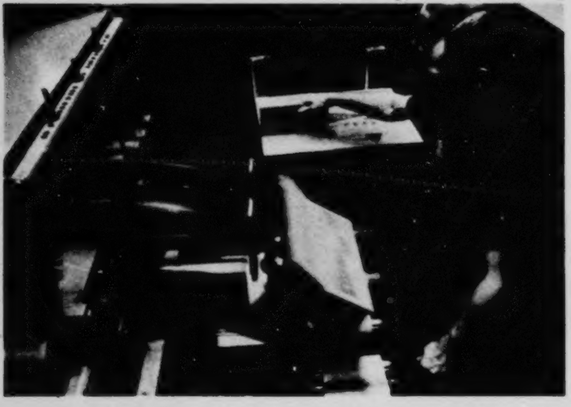
WORK PERFORMED

What would you do as a worker in this group?

You would do simple hand or machine work according to instructions. You would perform one or more of the following tasks.

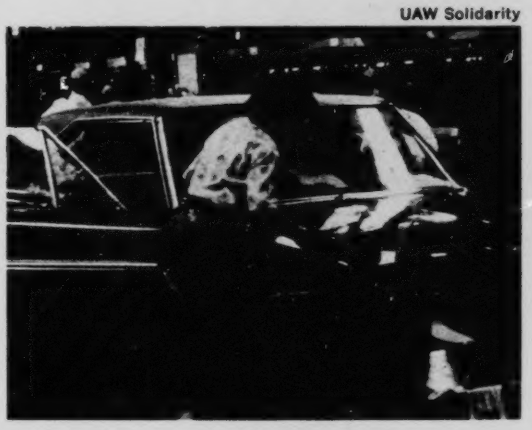
- Tend a machine that mixes large batches of bread batter.
- Use a hand truck to move supplies to workers on an assembly line.
- Wash and iron clothes in a commercial laundry.
- Smooth wooden furniture posts using sandpaper and steel wool.
- Cut candy into squares using a special knife.
- Tend a machine that seals cartons.
- Staple padding to both sides of innerspring mattresses.
- Tend kettles that boil or soak ingredients.
- Sort pearl buttons according to shade and flaws.
- Supervise the work of others.

Libby, McNeill, and Libby



To keep pace with the machine, the operator folds and places a case on the machine every five seconds.

UAW Solidarity



The worker uses a special cloth to give each car its final shine.

ELEMENTAL WORK: INDUSTRIAL WTG 06.04

Workers in this group must be able to concentrate on the same tasks and follow set procedures.

Western Electric

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Follow simple instructions.
- Adjust to doing the same tasks over and over.
- Follow safety rules when tending a machine.
- Move or lift heavy objects.
- Use hands and fingers to load, unload, or tend machines.

CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you taken an industrial arts course? Would you like to work in a factory setting?
- Have you helped a worker install, repair, or build something in your home? Can you follow directions?
- Have you helped a custodian at school or church? Do you like this kind of work?

PREPARATION

How can you prepare for and enter this kind of work?

Most jobs in this group do not require specific training before employment. Employers often provide brief on-the-job training to new workers or when work assignments are changed. Industrial arts or shop courses provide useful background for jobs in this group.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Many people accept jobs in this group as their first full-time employment. As workers develop experience and skills, they may advance to other jobs in the work setting.

Tasks change very little from day to day because workers must follow set procedures. It is important that workers follow strict safety rules when working around machines.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
3. Activities of a routine, definite, organized nature.
9. Activities involving processes, methods, or machines.
10. Activities involving working on or producing things.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

2. Performing routine tasks.
10. Working within precise limits or standards of accuracy.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	■	☐	☐	– Comparing
PEOPLE	■	☐	☐	– Taking Instructions/ Helping
THINGS	■	☐	☐	– Tending

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
M Medium work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.
5. Noise and vibrations.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low 5	4	to 3	2	High 1
S – Spatial		4			
F – Form Perception		4 – 3			
K – Motor Coordination		4 – 3			
F – Finger Dexterity		4 – 3			
M – Manual Dexterity			3		

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **1-2.**

Workers use common sense to carry out simple one- and two-step instructions. They work under the same situations each day. For example, they mix ingredients or use buttons and switches to control machines.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter most occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

NFT – Most occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from 30 days up to and including 3 months (SVP 2, 3).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

OCCUPATIONS IN ELEMENTAL WORK: INDUSTRIAL

Ampoule Filler	559.685-018
Artificial-Flower Maker	739.684-014
Assembler	700.684-014
Assembler	723.684-010
Assembler	754.684-010
Assembler 2	723.684-018
Assembler, Automobile	806.684-010
Assembler, Cards and Announcements	794.687-010
Assembler, Electrical Accessories 1	729.687-010
Assembler, Metal Furniture	709.684-014
Assembler, Production	706.687-010
Assembler, Production Line	809.684-010
Assembler, Small Parts	706.684-022
Assembler, Small Products	739.687-030
Back Tender, Insulation Board	532.685-010
Baker Helper	526.686-010
Bakery Worker	929.686-010
Bagger	920.687-018
Bag-Machine Tender or Operator	649.685-014
Baler	690.685-022
Baling-Machine Tender	920.685-010
Band-Sawing-Machine Operator	690.485-010
Basket Assembler 1	669.685-014
Batter Mixer	520.685-010
Battery-Parts Assembler	727.687-038
Beamer	681.585-010
Beam-Warper Tender, Automatic	681.685-018
Bearingnizer	603.685-018
Beater-Engineer Helper	530.665-010
Bellows Assembler	710.687-010
Bench Grinder	705.684-010
Beveler	673.685-018
Bindery Worker	649.685-018
Bindery Worker	653.685-010
Blast-Furnace Keeper	502.664-010
Blast-Furnace-Keeper Helper	502.687-010
Block-Making-Machine Operator	575.685-014
Boarding-Machine Operator	589.685-010
Boner, Meat	525.684-010
Boring-Machine Operator, Production	606.685-010
Box Maker, Paperboard	794.684-014
Brine Maker	551.687-014
Buffer	690.685-046
Buffer 1	705.684-014
Burnisher	690.685-058
Buttoner	782.687-014
Calendering-Machine Operator	580.485-010
Candy-Maker Helper	520.685-050
Cannery Worker	529.686-014
Carder	920.685-034
Card Tender	680.685-018
Carton-Forming-Machine Operator	641.685-022
Carton-Packaging-Machine Operator	920.665-010
Casing Cleaner	525.686-010
Casing Tier	529.687-034
Cementer, Hand	788.687-030
Cementer, Machine Applicator	690.686-018
Charger Operator	504.565-010
Chemical Operator 2	558.585-014
Chipper	564.685-014
Cigarette-Making-Machine Catcher	529.666-014
Cigar Maker	790.684-014
Classifier	361.687-014
Cleaner and Polisher	709.687-010
Cloth Doffer	689.586-010
Cloth Folder, Hand	589.687-014
Cloth Winder	689.685-046
Coiler	613.685-010
Coil Winder	724.684-026
Colorer, Citrus Fruit	529.685-070
Collator, Hand	977.687-010
Comber Tender	680.665-010
Compounder	550.685-050
Concrete-Pipe-Making-Machine Operator	575.665-010
Condenser-Tube Tender	511.685-018
Conditioner-Tumbler Operator	361.685-010
Container Washer, Machine	529.685-074
Cook, Fry, Deep Fat	526.685-014
Cooler Room Worker	525.687-022
Coremaker, Machine 1	518.685-014
Coremaker, Pipe	518.684-014
Core-Oven Tender	518.685-010
Core Setter	518.684-010
Corrugated-Fastener Driver	669.685-042
Crater	920.484-010
Creeler	689.687-030
Crossband Layer	762.687-026
Crusher Tender	570.685-022
Cushion Builder	780.684-050
Cushion Maker 1	780.684-054
Cutter, Hand 2	781.687-026
Cutter, Hand 3	781.687-030
Cutter Helper	781.687-022
Cutter, Machine 2	699.685-014
Cutting-Machine Tender	690.685-122
Cylinder Batcher	582.665-010
Dairy Helper	529.686-026
Deburrer, Machine	715.685-018
Dipper	599.685-026
Distiller	552.682-010
Distillery Worker, General	529.687-066
Dividing-Machine Operator	520.685-086
Doffer	689.686-022
Drawer-In Helper, Hand	683.687-010
Draw-Frame Tender	680.685-034
Drilling-Machine Operator, Automatic	606.685-030
Dry Cleaner	589.685-038
Dry-Cleaner Helper	362.686-010
Dyer Helper	364.687-010
Dye-Tub Operator	582.585-014
Dye Weigher	550.684-014
Electric-Motor Assembler	721.684-022
Embossing-Press Operator	652.685-030
Enameler	509.684-010
Envelope-Machine Operator	649.685-042
Etcher, Printed Circuits	590.685-030
Extractor Operator	581.685-038
Eyelet-Machine Operator	699.685-018
Feed Mixer	520.685-098
Feed Weigher	920.685-058

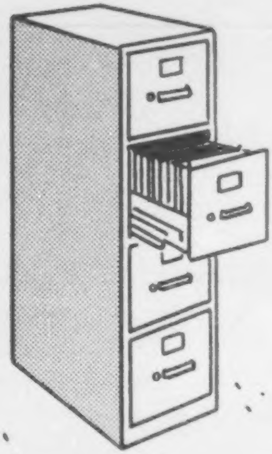
Filler	739.687-090
Film Spooler	692.685-082
Fish Cleaner	525.684-030
Flatwork Finisher	363.686-010
Floor Attendant	579.687-018
Fly Tier	732.684-074
Folder	369.687-018
Folder, Hand	794.687-022
Folding-Machine Feeder	653.686-014
Folding-Machine Operator	583.685-042
Forge Helper	619.666-010
Forging-Press Operator 2	611.685-010
Foundry Supervisor	519.131-010
Foundry Worker, General	519.687-022
Fruit-Press Operator	521.685-146
Furnace Tender	512.685-010
Garment Folder	789.687-066
Gear-Cutting-Machine Operator, Production	602.685-010
General Helper	529.687-094
Glass Installer	865.684-014
Gluer	762.687-034
Gluer	795.687-014
Glue Spreader, Veneer	569.685-042
Golf-Club Assembler	732.684-078
Grinder 1	705.684-026
Grinder-Chipper 2	809.684-026
Grip Wrapper	732.684-082
Hacker	573.686-022
Hand Sewer, Shoes	788.684-054
Hardware Assembler	763.684-042
Heat-Treater Helper	504.685-018
Hot-Plate-Plywood-Press Operator	569.685-054
Icer, Hand	524.684-022
Icer, Machine	524.685-034
Icing Mixer	520.685-114
Industrial-Truck Operator	921.683-050
Injection-Molding-Machine Tender	556.685-038
Interlacer	788.684-070
Jet Handler	557.684-010
Jogger	659.686-010
Kiln Burner	573.682-010
Knitter, Full-Fashioned Garment	685.665-010
Knitting-Machine Operator	685.665-014
Knitting-Machine Operator	685.685-010
Laborer	529.687-130
Laborer	559.686-022
Laborer, Boot and Shoe	788.687-066
Laborer, Chemical Processing	559.687-050
Laborer, Cheesemaking	529.686-050
Laborer, Concrete Plant	579.686-010
Laborer, General	509.686-010
Laborer, General	518.687-026
Laborer, General	519.686-010
Laborer, General	559.685-110
Laborer, General	579.667-010
Laborer, General	589.686-026
Laborer, General	609.684-014
Laborer, General	754.687-010
Laborer, Grinding and Polishing	705.687-014
Laborer, Hot-Plate Plywood Press	569.686-026
Laborer, Rags	539.587-010
Laborer, Salvage	929.687-022
Laborer, Tin Can	609.686-010
Lacer 1	788.687-070
Lathe Operator, Production	604.685-026
Launderer, Hand	361.684-010
Laundry Laborer	361.687-018
Laundry Operator	369.684-014
Laundry Worker 2	361.685-018
Lead Former	691.685-018
Leasing-Machine Tender	681.685-054
Leather Finisher	363.682-010
Light-Bulb Assembler	692.685-118
Loader 1	914.667-010
Log Roller	677.687-010
Loom-Winder Tender	681.685-062
Machine Cleaner	699.687-014
Machine Feeder	819.686-010
Machine Helper	619.687-014
Machine Operator 2	619.685-062
Marker 2	920.687-126
Marker, Machine	690.685-282
Melter Supervisor	512.132-010
Metal-Cleaner, Immersion	503.685-030
Metal-Fabricating-Shop Helper	619.686-022
Metal Finisher	705.684-034
Mexican Food Maker, Hand	520.687-046
Milling-Machine Operator, Production	605.685-030
Mill Operator	599.685-058
Mirror Specialist	779.684-038
Mixer	550.685-078
Mixer Operator	520.685-146
Mixer Operator	550.685-082
Mold-Fitting Operator	556.684-018
Molding Cutter	663.685-018
Mold Worker	514.567-010
Monorail Crane Operator	921.663-042
Mounter, Automatic	976.685-022
Multi-Operation-Forming-Machine Operator 2	616.685-042
Nailer, Hand	762.684-050
Nailing-Machine Operator	669.682-058
Nailing-Machine Operator, Automatic	669.685-066
Offset-Press Operator 2	651.685-018
Packager, Hand	920.587-018
Packager, Machine	920.685-078
Package Sealer, Machine	920.685-074
Packaging Supervisor	920.132-010
Painter, Brush	740.684-022
Painter, Spray 2	741.687-018
Painting-Machine Operator	599.685-074
Paint-Line Operator	599.685-066
Paint Mixer, Machine	550.485-018
Panel-Machine Operator	640.685-038
Parachute Rigger	912.684-010
Pipe Finisher	779.684-042
Plate-Take-Out Worker	500.687-010
Plumbing-Hardware Assembler	706.684-086
Polisher	700.687-058
Polisher	705.684-058
Potato-Chip Frier	526.685-046

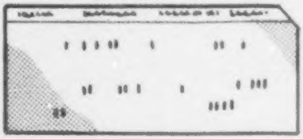
06.04 WTC

Pot Tender	512.685-018
Poultry Boner	525.687-066
Poultry Dresser	525.687-070
Poultry-Dressing Worker	525.687-082
Poultry Eviscerator	525.687-074
Poultry Hanger	525.687-078
Pourer, Metal	514.684-022
Power-Barker Operator	669.485-010
Presser, All-Around	363.682-014
Presser, Automatic	363.685-014
Presser, Form	363.685-018
Presser, Hand	363.684-010
Presser, Machine	363.682-018
Press Feeder	583.686-030
Press Operator	363.685-010
Pretzel Twister	520.587-010
Print Developer, Automatic	976.685-026
Processor, Grain	521.685-254
Production Helper	529.686-070
Production-Machine Tender	609.685-018
Progressive Assembler and Fitter	801.684-022
Pumper Helper	549.684-010
Punch-Press Operator 2	615.685-030
Putty Glazer	749.684-042
Quiller Operator	681.685-070
Raw-Cheese Worker	529.686-078
Reclamation Kettle Tender, Metal	512.685-022
Remelter	502.685-014
Record-Press Tender	556.685-070
Rewinder Operator	640.685-058
Riveter, Hand	709.684-066
Riveting-Machine Operator	616.685-058
Roll Finisher	920.685-090
Rope-Laying Machine Operator	681.685-086
Rope Maker, Machine	681.685-082
Rubber	742.684-010
Rubber-Mill Tender	550.685-102
Rug Cleaner	689.687-066
Sander, Hand	761.687-010
Sander, Portable Machine	761.684-034
Sausage Maker	520.685-202
Sawmill Worker	667.686-014
Screen Printer	979.684-034
Screw-Machine Operator, Production	604.685-034
Sealing-Machine Operator	692.685-162
Seed-Cleaner Operator	599.665-010
Sewer, Hand	782.684-058
Sewing-Machine Operator, Semi-Automatic	786.685-030
Shear Operator 2	615.685-034
Shellfish-Processing-Machine Tender	529.685-214
Shellfish Shucker	521.687-122
Shirt Presser	363.685-026
Shoe Cleaner	788.687-122
Shoe Packer	920.687-166
Silk-Screen Printer	726.687-018
Sinter-Machine Operator	510.685-026
Skein-Yarn Dyer	582.685-130
Skip Operator	921.683-062
Skiver, Blockers	585.685-110
Skiver, Machine	690.685-378
Slasher Operator	667.685-054
Slicing Machine Operator	521.685-306
Slitting-Machine-Operator Helper 1	699.587-010
Slubber Tender	680.685-098
Smoked Meat Preparer	525.587-014
Smoking-Pipe Liner	739.687-170
Sock Boarder	589.686-042
Solderer, Production Line	813.684-022
Spice Cleaner	521.685-322
Spinner	557.685-026
Spinner, Frame	682.685-010
Splicer	759.684-058
Spooler Operator, Automatic	681.686-018
Spooling-Machine Operator	691.685-026
Spot Cleaner	582.684-014
Spreader 1	781.687-058
Spreader, Machine	781.685-010
Spring Assembler	780.684-098
Spring Coiler	616.485-014
Stacking-Machine Operator 2	739.685-038
Stainer	742.684-014
Staple Cutter	680.685-102
Stapling-Machine Operator	692.685-202
Stenciler	781.687-066
Stenciler	920.687-178
Stone Setter	735.687-034
Stretcher-Leveler-Operator Helper	619.686-030
Strip-Cutting-Machine Operator	686.685-066
Stuffer	520.685-210
Supervisor, Blast Furnace	519.132-010
Supervisor, Dry Cleaning	369.137-010
Supervisor, Fertilizer	559.132-090
Surfboard Maker	732.684-126
Sweeping-Compound Blender	550.685-110
Tank-House-Operator Helper	519.565-014
Tapper	514.664-014
Tenter-Frame Operator	580.585-010
Thread Cutter	789.684-050
Thread Winder, Automatic	681.685-122
Ticketer	652.685-098
Trimmer, Hand	781.687-070
Trimmer, Meat	525.684-054
Trimming-Machine Operator	583.685-122
Tumbler Operator	599.685-110
Turner	789.687-182
Twister Tender	681.685-130
Wafer-Machine Operator	526.685-066
Washer	599.687-030
Washer, Machine	361.665-010
Warp-Tying-Machine Tender	683.685-034
Welder, Gun	810.664-010
Welder, Production Line	819.684-010
Winder Operator, Automatic	681.685-150
Wireworker	728.687-010
Woodworking-Shop Hand	769.687-054
Wrapping Machine Operator	641.685-098
Wringer-Machine Operator	589.685-098
Yarn Winder	681.685-154

07.

business detail





This is an interest in activities requiring accuracy and attention to details, primarily in an office setting.

You can satisfy this interest in a wide variety of jobs in which you can attend to the details of a business operation. You may enjoy using your math skills. Perhaps a job in billing, computing, or financial record keeping would satisfy you. You may prefer to deal with people. You would seek a job in which you meet the public, talk on the telephone, or supervise other workers. You may like to operate computer terminals, typewriters, or bookkeeping machines. Perhaps a job in record keeping, filing, or recording would satsify you. You may prefer to use your training and experience to manage offices and supervise other workers.

ADMINISTRATIVE DETAIL

Administrative detail is technical clerical work requiring special skills and knowledge. Workers in this group make minor decisions related to office operations. Jobs in this group are found in the offices of businesses, industries, courts, and government agencies. Doctors, lawyers, and other professionals also hire these workers.

WORK PERFORMED

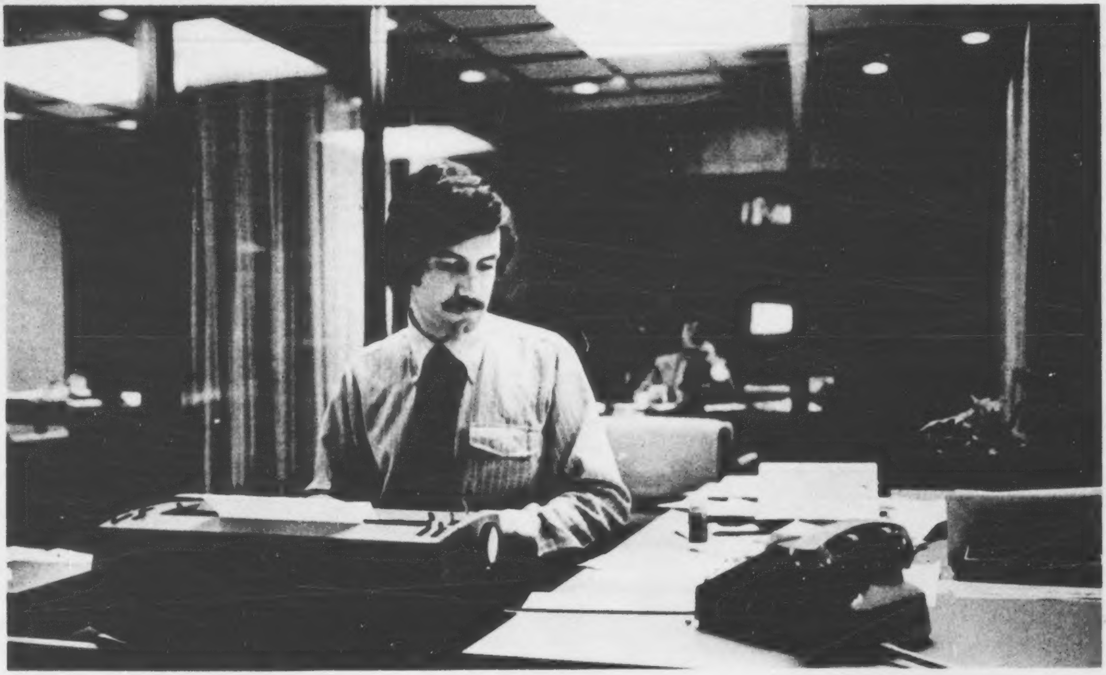
What would you do as a worker in this group?

You would perform a variety of clerical duties. You would perform one or more of the following tasks.

- Interview and investigate applicants for a low-cost housing project.
- Perform a variety of clerical duties for a local government.
- Maintain all records for a small business firm.
- Prepare legal papers for a lawyer.
- Keep records and prepare notices regarding the rental, sale, or management of real estate.
- Organize the social, business, and personal affairs of an employer.
- Prepare papers and do other tasks to close a loan.

Xerox Corporation

An office manager schedules and oversees the work of a clerical staff.



Secretaries may perform clerical tasks for their employers as well as organize their social and business affairs.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Speak and write clearly and with accuracy.
- Carry out instructions without close supervision.
- Make decisions based on set policy.
- Plan work schedules for yourself and others.
- Use hands and fingers to type, write shorthand, or record data.
- Recognize small differences in forms and shapes to record or read shorthand symbols.
- Recognize errors in spelling, grammar, and punctuation to proof copy.

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CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you taken courses in typing and shorthand? Can you type and write shorthand with speed and accuracy?
- Have you served as a secretary for a group or club? Did you keep minutes of the meetings? Do you enjoy this type of work?
- Have you worked in the school office or held other part-time clerical jobs? Did you work with records? Could you answer the questions of students or visitors?
- Have you been responsible for the work of others? Do you work well with others?

High school typing courses can help you develop one of the skills required by most of this group's jobs.

This school secretary handles the duties of a bookkeeper, file clerk, and receptionist.

PREPARATION

How can you prepare for and enter this kind of work?

Most jobs in this group require training in typing. Many require training in shorthand or in the use of dictation transcribing equipment. This training is offered by high schools and technical schools. Business and community colleges offer one- and two-year programs that are helpful for these jobs. Workers in these jobs are usually promoted from routine clerical jobs. People with above average vocabulary, grammar, and spelling skills can enter some of these jobs. They receive on-the-job training for specific tasks. Applicants usually need to take a civil service test to enter government jobs.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Some of these jobs require workers who can be trusted to handle confidential information. Workers in small offices often do a variety of tasks. They may serve as bookkeeper, clerk, and receptionist.

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QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
4. Dealing with people.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Coordinating
PEOPLE	☐	■	☐	– Supervising
THINGS	■	☐	☐	– Operating/ Controlling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
L Light work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low to High 5 4 3 2 1
G – General	3 – 2
V – Verbal	3 – 2
N – Numerical	3
Q – Clerical Perception	3 – 2

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **4-5.**

Workers use logical thinking and personal judgment to perform a variety of office tasks that require specialized skills and knowledge. They carry out instructions presented in written, oral, or diagram form. They deal with concrete situations and variables such as preparing correspondence, assisting executives, and conducting interviews.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

T – Technical and business college courses in the clerical and office field.

V – Vocational school business courses.

NFT – Some occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 6 months up to and including 4 years (SVP 5, 6, 7).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Language Skills, Basic Math Skills.

OCCUPATIONS IN ADMINISTRATIVE DETAIL

Admissions Evaluater	**205.367-010**
Administrative Clerk	**219.362-010**
Administrative Secretary	**169.167-014**
Attendance Officer	**168.367-010**
Bond Clerk	**216.362-010**
Budget Clerk	**216.382-022**
Contract Clerk	**119.267-018**
Court Clerk	**243.362-010**
Driver's License Examiner	**168.267-034**
Eligibility-and-Occupancy Interviewer	**168.267-038**
Hospital-Insurance Rrepresentative	**166.267-014**
Insurance Clerk 1	**219.362-034**
Legal Secretary	**201.362-010**
Loan Counselor	**186.267-014**
Manager, Office	**169.167-034**
Manager, Statements Clerks	**214.137-014**
Manager, Traffic 1	**184.167-098**
Manager, Traffic 1	**184.167-102**
Medical Secretary	**201.362-014**
Mortgage Clerk	**249.382-010**
Procurement Clerk	**249.367-066**
Real-Estate Clerk	**219.362-046**
Relocation Commissioner	**188.167-070**
School Secretary	**201.362-022**
Secretary	**201.362-030**
Securities Clerk	**219.362-054**
Social Secretary	**201.162-010**
Station Agent 1	**910.137-038**
Steward/Stewardess, Chief, Cargo Vessel	**350.137-014**
Test Technician	**249.367-078**
Tile Examiner	**119.287-010**
Town Clerk	**243.367-018**

07.02 WTC

MATHEMATICAL DETAIL

Mathematical detail is clerical work using arithmetic skills to process numerical data related to a business operation. Work involves figuring and keeping records of quantities, costs, and charges. Jobs in this group are found in businesses, industries, and government agencies. Banks, finance companies, and accounting firms hire many of these workers.

WORK PERFORMED

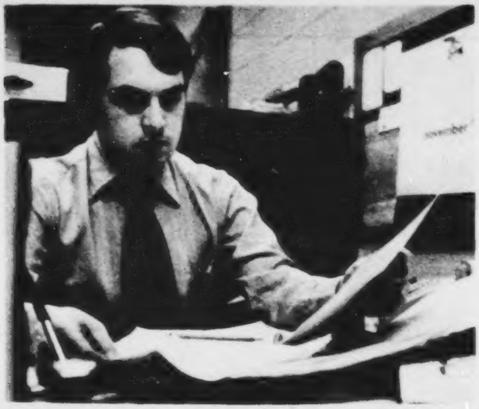
What would you do as a worker in this group?

You would compute and record numerical data. This data usually would concern the daily operation of a business office. You would perform one or more of the following tasks.

- Compute employees' wages and payroll deductions.
- Use machines to calculate or record numerical data.
- Figure the costs of labor and materials needed or used by a company.
- Compute weight, freight and shipping charges.
- Maintain complete financial records of a small business.
- Supervise accounting clerks in a large business.

IACP

Bookkeepers maintain systematic and up-to-date records of business transactions in ledgers or other accounting forms.



Do you have a knack for concentrating on details?

Audit clerks must be able to spot mathematical errors quickly as they check the figures recorded by others.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Compute and record numerical data correctly.
- Know standard systems and procedures for keeping complete records.
- Move eyes, hands, and fingers together to use computing machines or to enter figures in a ledger.
- Adapt to routine and detailed work.
- Read and copy large amounts of numbers without error.
- Plan and oversee the work of others.

CLUES

Do you have or can you develop these skills, abilities, and interests?
Your answers to the following questions will help you decide.

- Have you had business or general math courses? Do you like working with numbers?
- Have you taken bookkeeping or accounting courses? Are you interested in these fields?
- Have you balanced a checking account or figured interest rates? Have you helped work out a budget? Are you quick to spot errors in math?
- Have you served as treasurer for a school or local group? Did your records balance at the end of your term of office?
- Have you held a summer or part-time office job that involved working with numbers? Do you think you would like routine work of this kind?

Invoice control clerks need finger coordination to operate an adding machine as they read large quantities of numbers.

PREPARATION

How can you prepare for and enter this kind of work?

People able to compute basic arithmetic can enter many of these jobs. Workers receive on-the-job training for the specific tasks involved. However, some jobs require prior training in bookkeeping, accounting, or business math. High schools and business schools offer this type of training.

Federal government jobs usually require entrance tests.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Workers in small offices do a variety of computing tasks. They may have to keep all numerical records for a business or agency. Prior training and experience is usually needed for these jobs.

Large offices may divide the duties among many workers. Workers in these settings may do the same thing every day. People with little or no experience may be hired for these jobs.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
2. Activities involving business contact.
3. Activities of a routine, definite, organized nature.
9. Activities involving processes, methods, or machines.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

2. Performing routine tasks.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	■	☐	– Compiling
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	☐	■	☐	– Operating/ Controlling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
L Light work.
4. Reaching, handling, fingering, and/or feeling.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels				
	Low		to		High
	5	4	3	2	1
G – General			3		
V – Verbal			3		
N – Numerical			3		
Q – Clerical Perception			3 – 2		

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 3-4.

Workers use personal judgment and math skills to keep financial records and compute numbers accurately. They carry out instructions presented in written, oral, or diagram form. These workers deal with a variety of concrete variables such as numerical record-keeping systems and office machines.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.
A – To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- T – Technical and business college courses in the clerical and office field.
- V – Vocational school business courses.
- NFT – Some occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 1 month up to and including 2 years (SVP 3, 4, 5, 6).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Language Skills, Basic Math Skills.

OCCUPATIONS IN MATHEMATICAL DETAIL

Account Analyst	214.382-010	Insurance Clerk	214.362-02
Accounting Clerk	216.482-010	Interest Clerk	216.382-0
Accounting Clerk, Data Processing	216.382-010	Invoice-Control Clerk	214.362-0
Audit Clerk	210.382-010	Margin Clerk 2	216.382-04
Billing-Control Clerk	214.387-010	Mortgage-Accounting Clerk	216.362-0
Billing Typist	214.382-014	Payroll Clerk	215.482-01
Bookkeeper 1	210.382-014	Payroll Clerk, Chief	215.137-01
Bookkeeper 2	210.382-018	Posting Clerk	216.587-01
Bookkeeping-Machine Operator 1	210.382-022	Probate Clerk	216.362-0
Bookkeeping-Machine Operator 2	210.382-026	Rater	214.482-02
Brokerage Clerk 2	219.362-018	Receipt-and-Report Clerk	216.382-0
Calculating-Machine Operator	216.482-022	Statement Clerk	219.362-0
Claim Examiner	168.267-014	Statistical Clerk	216.382-0
Collection Clerk	216.362-014	Stock-Transfer Clerk	216.362-0
Cost Clerk	216.382-034	Supervisor, Accounts Receivable	214.137-0
Credit-Card Clerk	210.382-038	Teller, Collection and Exchange	211.362-0
Demurrage Clerk	214.362-010	Timekeeper	215.367-0
Documentation-Billing Clerk	214.362-014	Traffic Clerk	214.587-0
Exchange Clerk	216.362-018	Traffic-Rate Clerk	214.362-0
Food-and-Beverage Controller	216.362-022	Trust-Vault Clerk	216.367-0
Foreign Clerk	214.467-010		

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FINANCIAL DETAIL

Financial detail is work requiring math skills as well as an ability to deal with the public. Workers in this group also keep records and supervise the work of others. Jobs in this group are found where money is paid to or received from the public. Banks and other financial institutions also employ workers in this group.

WORK PERFORMED

What would you do as a worker in this group?

You would pay or receive money and keep account of such exchanges. You would perform one or more of the following tasks.

- Receive money from customers and compute payments and interest.
- Compute airfare and sell airline tickets.
- Compute costs for items, receive cash, and make change.
- Cash winning tickets at a race track.
- Record bids for items and collect deposits at an auction.

Could you read prices, punch correct keys, make change, and smile as the customer waits?

These workers must make their records and the money received from customers balance each day.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Use math skills to compute costs and make change.
- Keep records according to a set system.
- Use eyes, hands, and fingers to operate an adding machine or cash register.
- Use tact and courtesy in dealing with the public.
- Adapt to routine work and set procedures.
- Plan and oversee the work of others.

CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you taken a course in bookkeeping or accounting? Do you like working with numbers?
- Have you used a calculator or adding machine? Do you like operating such equipment?
- Have you balanced a personal checking account? Did the balance agree with the bank statement?
- Have you served as treasurer for a school, church, or club? Did your records balance at the end of your term of office?
- Have you sold anything to the public? Can you make change rapidly and correctly?

American Bankers Association

Would you enjoy the public contact required of a bank teller?

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FINANCIAL DETAIL WTC 07.03

Do you like to maintain a budget and keep records on your personal financial transactions?

PREPARATION

How can you prepare for and enter this kind of work?

Basic math skills are required for entering many of these jobs. Workers receive on-the-job training for specific tasks. Some jobs require formal training in bookkeeping, typing, or other business subjects. This training is offered in high schools and in commercial or business schools.

Applicants usually need to take a civil service test to enter government jobs.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Workers in this group often work after a firm closes to the public. They must make their cash and records balance each day.

Workers who handle money may have to be bonded to insure their honesty.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
2. Activities involving business contact.
3. Activities of a routine, definite, organized nature.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

4. Dealing with people.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	■	☐	– Compiling
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	☐	■	☐	– Operating/ Controlling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
L Light work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	**Levels**				
	Low		to		High
	5	4	3	2	1
G – General			3		
V – Verbal			3		
N – Numerical			3		
Q – Clerical Perception			3		
F – Finger Dexterity		4 – 3			

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **3-4**.

Workers use personal judgment along with basic math skills to collect and distribute money and to keep records of monetary transactions. They interpret instructions usually presented in written form. These workers deal with concrete variables such as ticket sales, calculators, and gambling transactions.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter most occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

V – Vocational school courses in distributive education or general clerical field.

NFT – Most occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from 30 days up to and including 2 years (SVP 2, 3, 4, 5, 6).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Basic Math Skills.

OCCUPATIONS IN FINANCIAL DETAIL

Auction Clerk	294.567-010
Cashier 1	211.362-010
Cashier 2	211.462-010
Cashier-Checker	211.462-014
Cashier, Gambling	211.462-022
Collector	241.367-010
Coupon-Redemption Clerk	290.477-010
Post-Office Clerk	243.367-014
Supervisor, Ticket Sales	238.137-022
Teller	211.362-018
Teller	211.462-034
Teller, Note	211.362-026
Ticket Agent	238.367-026
Ticket Seller	211.467-030

07.04 WTG

INFORMATION PROCESSING: SPEAKING

Information processing, as used here, is speaking with people as a main job task. Some workers in this group use telephones, radios, or the telegraph. Businesses, institutions, and government agencies employ most of these workers in their offices.

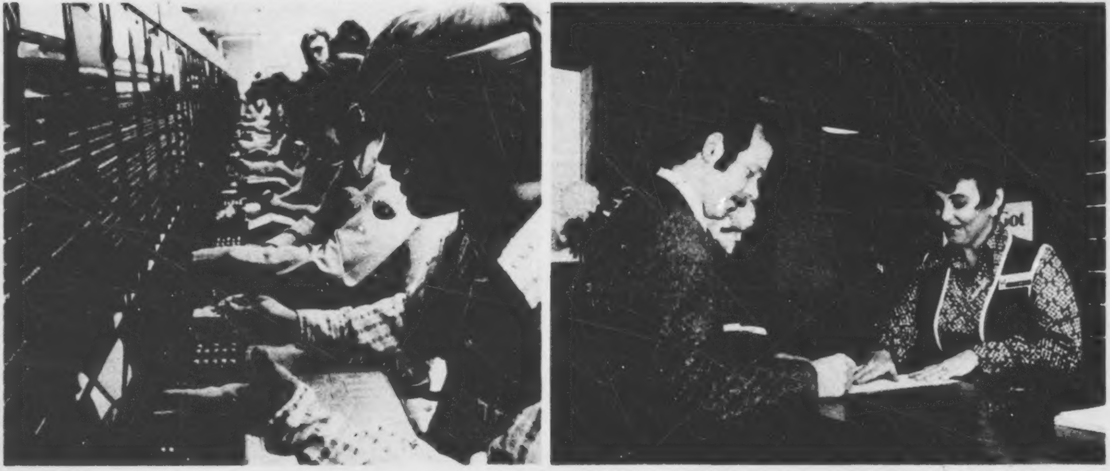
WORK PERFORMED

What would you do as a worker in this group?

You would ask questions or give information to others. You would perform one or more of the following tasks.

- Interview people and compile information.
- Give information to bus or train travelers.
- Operate a telephone switchboard.
- Register hotel guests and assign rooms.
- Receive callers at an office and direct them to the proper area.
- Use a radio to receive trouble calls and dispatch repairers.
- Register park visitors and explain rules and hazards.

American Telephone and Telegraph Co.



What do these two jobs have in common?

United Airlines

Airlines employ reservation sales agents to help customers arrange flight schedules.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Use tact and courtesy in dealing with the public.
- Speak clearly.
- Give directions that are easily understood.
- Use a typewriter to complete forms.
- Change often from one type of task to another.
- Plan and oversee the work of others.

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CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you taken business courses? Did you like them?
- Have you taken courses in speech? Do you have a clear speaking voice? Do you use good grammar?
- Have you worked in a school or community survey? Do you enjoy meeting and interviewing people?
- Have you operated a citizen's band radio? Do you like to use the equipment?

PREPARATION

How can you prepare for and enter this kind of work?

People who enter these jobs usually have a good vocabulary and like contact with people. High school courses in typing or sales are helpful. Employers frequently provide on-the-job training ranging from one month to two years. General education or business training beyond high school improves chances for promotion. Applicants usually need to take a civil service test to enter government jobs.

Loan interviewers must be able to ask questions with tact and courtesy.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Workers in small offices may be assigned a variety of tasks. Jobs in large offices are often specialized.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
3. Activities of a routine, definite, organized nature.
6. Activities involving the communication of ideas and information.
9. Activities involving processes, methods, or machines.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	■	☐	– Compiling
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	☐	■	☐	– Operating/ Controlling

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
4. Dealing with people.
8. Making decisions using standards that can be measured or checked.

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
L Light work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low to High 5 4 3 2 1
G – General	3
V – Verbal	3
N – Numerical	4 – 3
Q – Clerical Perception	3 – 2
K – Motor Coordination	4 – 3

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 3-4.

Workers use personal judgment and specialized knowledge to give information to people orally. They interpret instructions presented in written, oral, diagram, and schedule form. These workers deal with concrete variables such as train and bus schedules, radio transmitters, and radar equipment.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter most occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

V – Vocational school courses in the general clerical field.

NFT – Most occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 1 month up to and including 4 years (SVP 3, 4, 5, 6, 7).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

OCCUPATIONS IN INFORMATION PROCESSING: SPEAKING

Admitting Officer	205.137-010
Airline-Radio Operator	193.262-010
Central-Office Operator	235.462-010
Central-Office-Operator Supervisor	235.132-010
Charge-Account Clerk	205.367-014
Civil-Service Clerk	205.362-010
Classified-Ad Clerk 1	247.367-010
Collection Clerk	241.357-010
Communication-Center Operator	235.662-014
Correspondence Clerk	209.262-010
Credit Clerk	205.367-022
Customer Service Representative	959.361-010
Directory-Assistance Operator	235.662-018
Dispatcher	193.262-014
Dispatcher	932.167-010
Dispatcher, Bus and Trolley	913.167-014
Dispatcher, Chief, Service or Work	959.137-010
Dispatcher, Maintenance Service	239.367-014
Dispatcher, Radio	379.362-010
Dispatcher, Service	959.167-010
Dispatcher, Ship Pilot	248.367-026
Dispatcher, Traffic or System	919.162-010
Election Clerk	205.367-030
Employment-and-Claims Aide	169.367-010
Employment Clerk	205.362-014
Fire Lookout	452.367-010
Hotel Clerk	238.362-010
Information Clerk	237.367-018
Information Clerk	237.367-022
License Clerk	205.367-034
Loan Interviewer	241.367-018
Order Clerk, Food and Beverage	209.567-014
Police Aide	243.362-014
Policyholder-Information Clerk	249.262-010
Public Health Register	169.167-046
Radio Officer	193.262-022
Receptionist	237.367-038
Recreation-Facility Attendant	341.367-010
Registration Clerk	205.367-042
Reservations Agent	238.367-018
Service Clerk	221.367-070
Skip Tracer	241.367-026
Supervisor, Survey Workers	205.137-014
Survey Worker	205.367-054
Taxicab Starter	913.367-010
Telegrapher	236.562-010
Telephone-Answering-Service Operator	235.662-026
Telephone Operator	235.662-022
Telephone Operator, Chief	235.137-010
Train Dispatcher	184.167-262
Travel Clerk	238.367-030

INFORMATION PROCESSING: RECORDS

Information processing, as used here, means to compile, review, or maintain records. Workers in this group also schedule workers and check records for accuracy. Jobs in this group are found in most offices of businesses, institutions, and government agencies.

WORK PERFORMED

What would you do as a worker in this group?

You would follow standard office procedures for working with various types of records. You would perform one or more of the following tasks.

- Prepare duty rosters for airplane flight crews.
- Review insurance claim forms for completeness.
- Read a copy of a letter or printed article and mark errors.
- Classify documents and code them for filing.
- Collect, verify, and file hospital records and prepare a summary report.
- Oversee the work of others.

American Bankers Association

Credit authorizers must know and follow bank procedures as they analyze loan applications.

Helping policyholders prepare claims is part of the daily routine of an insurance clerk.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Use a specified record keeping system.
- Analyze and classify data according to set procedures.
- Gather and record numerical data with accuracy.
- Adjust to routine work which is repeated daily.
- Plan and oversee the work of others.
- Recognize errors in punctuation, grammar, and spelling.

CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you taken business courses? Do you like to classify and file material?
- Have you done a library report? Can you locate materials quickly using the card file?
- Have you been an officer in a school, church, or social group? Did you maintain a file of minutes or correspondence?
- Have you collected stamps or coins? Do you have them classified and arranged according to a plan?

You would use the same skills to find books in a library or patients' records in a doctor's office.

PREPARATION

How can you prepare for and enter this kind of work?

Most employers prefer workers who have a high school education or its equal. Some employers prefer workers who have completed business courses. Training for entry into many of these jobs is provided by federal or state programs for unemployed and low-skilled workers.

On-the-job training ranges from a short demonstration to a one-year program. Some employers test applicants' ability to perform or to learn job duties.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Workers in small offices may be assigned a variety of tasks. Jobs in large offices are often specialized.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
3. Activities of a routine, definite, organized nature.
6. Activities involving the communication of ideas and information.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

4. Dealing with people.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

07.05 WTC INFORMATION PROCESSING: RECORDS

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	■	☐	– Compiling
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	☐	■	☐	– Operating/ Controlling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
L Light work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low to High 5 4 3 2 1
G – General	3
V – Verbal	4 – 3
N – Numerical	4 – 3
Q – Clerical Perception	3 – 2
F – Finger Dexterity	4 – 3

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **3-4**.

Workers apply personal judgment and specialized skills to process records of business transactions or to perform other clerical tasks. They carry out instructions presented in written, oral, or diagram form. These workers deal with various types of concrete variables such as truck routes, records of securities, and inventory control.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter most occupations workers only need the required competencies and credentials.
A – To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

INFORMATION PROCESSING: RECORDS WTC 07.05

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

- T – Technical school and business college courses in the clerical field.
- V – Vocational school courses in the general clerical field.
- NFT – Some occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 1 month up to and including 1 year (SVP 3, 4, 5).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Language Skills, Basic Math Skills.

OCCUPATIONS IN INFORMATION PROCESSING: RECORDS

Aircraft-Log Clerk	221.362-010
Assignment Clerk	215.367-010
Checker 2	209.687-010
Circulation Clerk	209.362-010
Claims Clerks 1	241.362-010
Classification Clerk	206.387-010
Classified-Ad Clerk 2	247.387-022
Coding Clerk	209.387-010
Compiler	209.387.014
Control Clerk, Auditing	209.362-014
Control Clerk, Data Processing 1	221.382-014
Correspondence-Review Clerk	209.367-018
Credit Authorizer	249.367-022
Crew Scheduler	215.362-010
Customer-Complaint Clerk	241.367-014
Diet Clerk	245.587-010
Disbursement Clerk	209.367-022
Dispatcher, Motor Vehicle	249.167-014
Expediter	222.367-018
File Clerk 2	206.367-014
Insurance Checker	219.482-014
Insurance Clerk 1	219.387-014
Insurance Clerk 2	205.567-010
Mail Carrier	230.367-010
Mail Clerk	209.587-026
Mail Handler	209.687-014
Mailroom Supervisor	209.137-010
Medical-Record Clerk	245.362-010
Medical Record Technician	079.367-014
Messenger, Bank	230.367-014
Order Clerk	249.367-054
Parcel-Post Clerk	222.387-038
Personnel Clerk	209.362-026
Proofreader	209.387-030
Property Clerk	222.367-054
Reservation Clerk	238.362-014
Reservation Clerk	238.367-014
Route-Delivery Clerk	222.587-034
Scheduler, Maintenance	221.367-066
Shipping-Ordering Clerk	219.367-030
Shorthand Reporter	202.362-010
Stenographer	202.362-014
Stenotype Operator	202.362-022
Stock-Control Clerk	219.367-034
Stock-Control Supervisor	221.137-038
Supervisor, Mails	243.137-010
Supervisor, Personnel Clerks	209.132-010
Supervisor, Steno Pool	202.132-010
Tape Librarian	206.387-030
Title Searcher	209.367-046
Traffic Clerk	221.367-078
Train Clerk	219.462-014
Transportation Agent	912.367-014
Travel Counselor, Automobile Club	238.167-014
Yard Clerk	209.367-054

clerical machine operation

Clerical machine operation involves the use of business machines to record or process data. These machines are used to type, sort, compute, send, or receive data. These jobs are found wherever large amounts of data are processed, sent, or received. Businesses, industries, and government agencies employ most of the workers in this group.

Standard Oil Company

The speed with which teletyped messages are sent and received helps a company operate more efficiently.

WORK PERFORMED

What would you do as a worker in this group?

You would operate one or several machines to record, process, send or receive data. You would perform one or more of the following tasks.

- Type letters and reports.
- Set type for printed materials.
- Process financial records using a bookkeeping machine.
- Enter data onto computer punch cards or magnetic tape using a keyboard machine.
- Enter data onto a computer using a computer terminal.
- Send and receive messages using telegraphic typewriter.
- Operate a telephone switchboard.
- Supervise and plan the work of clerical machine operators.

A monotype operator needs keyboard accuracy and finger dexterity to perform well.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Move eyes, hands, and fingers together to operate a typewriter or other keyboard machine.
- Adjust to routine work.
- Maintain a high degree of accuracy.
- Know bookkeeping and billing procedures.
- Know specific systems and procedures for operating a computer terminal.
- Plan and oversee the work of others.

CLUES

Do you have or can you develop these skills, abilities, and interests?
Your answers to the following questions will help you decide.

- Have you taken courses in typing? Were you average or better in speed and accuracy? Do you like to type?
- Have you worked as an office helper at school or somewhere else? Did you type or operate any office machines? Was your work accurate?
- Have you used a pocket calculator? Was the keyboard arrangement easy to use?

U. S. Environmental Protection Agency

Computer operators learn to type commands into computer consoles in vocational and technical schools.

PREPARATION

How can you prepare for and enter this kind of work?

Most of these jobs require a high school education or its equal. Spelling and grammar skills are important to enter some jobs in this group. Basic math skills may also be important. Employers may prefer workers who can operate several clerical machines.

Some employers provide machine instruction and on-the-job training. Vocational and technical schools offer courses to prepare operators of keypunch machines and computer terminals. These courses are three months to one year in length. Applicants with some type of training usually have better chances for employment.

Experienced workers with leadership ability may become supervisors.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Large offices usually have enough work to keep machines operating all the time. In small offices, machine operators may also do a variety of other clerical tasks.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
3. Activities of a routine, definite, organized nature.
9. Activities involving processes, methods, or machines.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

2. Performing routine tasks.
4. Dealing with people.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

07.06 WTC CLERICAL MACHINE OPERATION

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	■	☐	– Compiling
PEOPLE	■	☐	☐	– Taking Instructions/ Helping
THINGS	☐	■	☐	– Operating/ Controlling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	**Levels** Low to High 5 4 3 2 1
G – General	3
Q – Clerical Perception	3 – 2
K – Motor Coordination	3 – 2
F – Finger Dexterity	3
M – Manual Dexterity	4 – 3

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **3.**

Workers use basic mechanical skills to operate clerical machines that compute or copy numbers or words. They follow operating instructions which are presented in written, oral, or diagram form. These workers deal with concrete variables such as computer terminals, typewriters, and bookkeeping machines.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter most occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

T – Technical school and business college courses in the clerical field.
V – Vocational school business and office courses.
NFT – Some occupations in this group have no related formal education or training programs.

CLERICAL MACHINE OPERATION WTG 07.06

Training Time

Occupations in this group may require from over 3 months up to and including 2 years (SVP 4, 5, 6).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Basic Math Skills, Language Skills.

OCCUPATIONS IN CLERICAL MACHINE OPERATION

Adding-Machine Operator	216.482-014
Billing-Machine Operator	214.482-010
Clerk-Typist	203.362-010
Computer Operator	213.362-010
Computer-Peripheral-Equipment Operator	213.382-010
Data Typist	203.582-022
Food Checker	211.482-014
Keypunch Operator	203.582-030
Linotype Operator	650.582-010
Magnetic-Tape-Typewriter Operator	203.582-034
Monotype-Keyboard Operator	650.582-014
Phototypesetter Operator	650.582-022
Proof-Machine Operator	217.382-010
Supervisor, Computer Operations	213.132-010
Supervisor, Machine-Records Unit	213.132-014
Supervisor, Telegraphic-Typewriter Operators	203.132-010
Tabulating-Machine Operator	213.682-010
Telegraphic-Typewriter Operator	203.582-050
Transcribing-Machine Operator	203.582-058
Transit Clerk	217.382-014
Typesetter-Perforator Operator	203.582-062
Typist	203.582-066
Varitype Operator	203.382-026
Verifier Operator	203.582-070

clerical handling

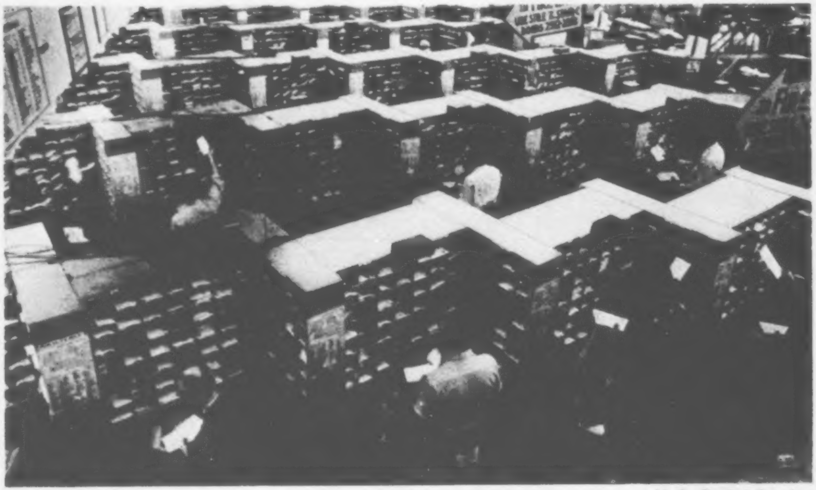
Jobs in this group involve performing clerical duties requiring little specific preparation or skill. These duties are to file, sort, copy, route, or deliver data. Most large businesses, industries, and government agencies employ these workers.

WORK PERFORMED

What would you do as a worker in this group?

You would do routine clerical work. You would often be assigned to a specific set of tasks. These tasks might vary or stay the same. You would perform one or more of the following tasks.

- Wrap, inspect, weigh, and mail packages.
- Record cash on delivery charges or insurance rates on packages.
- Receive, sort, and route mail or messages.
- File records and documents.
- Keep office workers supplied with paper, pencils, and typewriter ribbons.
- Record information about incoming or outgoing shipments.
- Supervise the work of others.



The majority of the postal clerks employed by the government sort incoming and outgoing mail.

U. S. Postal Service

U. S. Postal Service

Large companies employ workers to sort incoming mail and messages and prepare outgoing letters and packages for shipment.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Perform clerical tasks that do not require special skills.
- Follow directions and set procedures.
- Keep correct records and copy numbers without error.
- Adjust to routine work.
- Work with others as a member of a team.
- Plan and oversee the work of others.

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CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you worked as an office helper at school or somewhere else? Did you run errands for teachers or office staff?
- Have you kept a checking account for yourself or for a club or group? Did you keep correct records? Do you enjoy this type of detailed work?
- Have you helped put papers or cards in order according to the alphabet? Do you mind doing routine clerical tasks?

PREPARATION

How can you prepare for and enter this kind of work?

Many of these jobs require basic arithmetic and English skills. Most employers provide on-the-job training. However, high school level commercial courses are helpful in getting these jobs. Federal government jobs usually require applicants to take entrance tests.

For jobs in this group, employers sometimes hire workers who have clerical training but no experience. Employers then select workers from these entry jobs to fill openings in higher level jobs. As a result, these jobs are often a starting place for promotion to other types of office jobs.

American Bankers Association

Could you follow set filing procedures and adjust to routine work?

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OTHER CONSIDERATIONS

What else should you know about these jobs?

Jobs in this group are a source of employment for people wanting part-time work. Although the pay is often low, experience in these jobs can be valuable for advancement.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
3. Activities of a routine, definite, organized nature.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	■	☐	☐	– Copying
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
L Light work.
4. Reaching, handling, fingering, and/or feeling.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low to High 5 4 3 2 1
G – General	4 – 3
V – Verbal	4 – 3
Q – Clerical Perception	3
F – Finger Dexterity	4 – 3
M – Manual Dexterity	4 – 3

07.07 WTG clerical handling

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **2-3.**

Workers use common sense to carry out instructions involving easy clerical tasks. They mail packages, receive and send messages, and collect coins from machines.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter most occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

V – Vocational school courses in the general clerical field.

NFT – Most occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from 30 days up to and including 3 months (SVP 2, 3).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

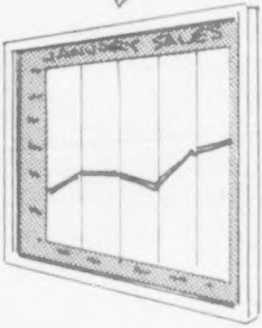
OCCUPATIONS IN CLERICAL HANDLING

Addresser	209.587-010
Advertising-Material Distributor	230.687-010
Checker 1	222.687-010
Clerk, General	209.562-010
Collator	653.687-010
Deliverer, Outside	230.667-010
Distributing Clerk	222.587-018
File Clerk 1	206.362-010
Mailroom Supervisor	222.137-022
Messenger, Copy	239.677-010
Office Helper	239.567-010
Page	249.687-014
Routing Clerk	222.687-022
Sorter	209.687-022
Teacher Aide 2	249.367-074

08.

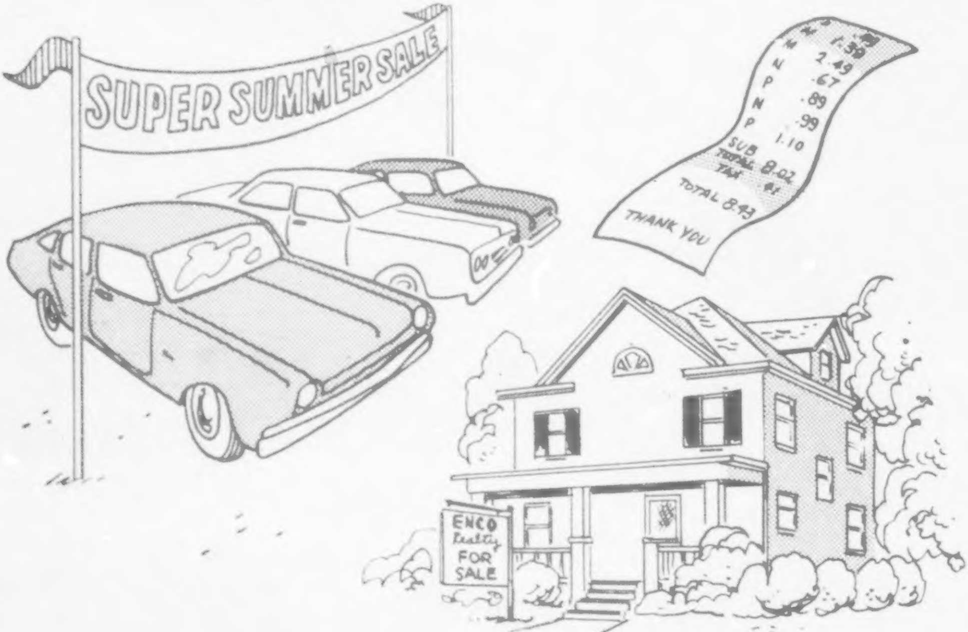
PERSUASIVE

Bern's
SALE
REG 109.99
NOW 88.50



This is an interest in influencing others through sales and promotional techniques.

You can satisfy this interest in a wide variety of sales jobs. You may enjoy selling technical products or services. Perhaps you may prefer a selling job which requires less background knowledge. You may enjoy dealing with business and industrial workers. You could seek a job in wholesale sales. You may like to deal with the general public. You could work in stores, sales offices, or in customers' homes. You may prefer to buy and sell products to make a profit.


SUPER SUMMER SALE
1.39
2.49
.67
.89
.99
1.10
SUB TOTAL 8.02
TAX .41
TOTAL 8.43
THANK YOU
ENCO
Realty
FOR
SALE

08.01 WTC

SALES TECHNOLOGY

Technical sales are the selling of technical equipment such as industrial machinery. Jobs also include the selling of insurance and services. Some workers in this group buy as well as sell. Wholesale, service, insurance, and other private firms employ workers in this group.

WORK PERFORMED

What would you do as a worker in this group?

You would use speaking skills to buy or sell products, materials, equipment, or services. Extensive knowledge about what you buy or sell would be needed. You would perform one or more of the following tasks.

- Call on doctors and drugstores to promote the sale and use of new drugs and medicines.
- Select and purchase goods for a department store.
- Call on industries, companies, and professionals in their places of business.
- Provide technical information about the product, material, equipment, or service sold.
- Explain the use and maintenance of construction equipment to contractors.
- Sell insurance to people.
- Advise customers of their need for the products or services you sell.

This insurance representative may have first contacted these clients in their home.

Department store buyers must be able to judge the quality of the goods they purchase.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Learn technical information about the products you sell.
- Explain technical information to others.
- Gain the trust of others through your attitude and behavior.
- Know credit rules and when it is best to buy or sell.
- Plan and prepare complex sales contracts or purchase orders.
- Note errors in figures or wording in contracts or purchase orders.
- Plan and manage your own time and work.

CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you taken business or sales related subjects in school? Did you like the courses?
- Have you attended auctions? Can you pinpoint, in advance, the items which sell for the highest bid? Do you like to estimate the cost of items?
- Have you purchased items and sold them to make money? Were your profits what you expected them to be? Do you enjoy doing this type of activity?
- Have you made speeches or been in debates? Do you enjoy presenting ideas to people?
- Have you worked as a salesperson in a store? Do you enjoy sales work?

American Textiles Manufacturer's Institute, Inc.

Sales representatives must have a thorough knowledge of the products they sell in order to inform general sales workers.

Would you enjoy traveling to call on clients?

PREPARATION

How can you prepare for and enter this type of work?

The most common way to prepare for this work is to obtain a two- or four-year degree. A major in business administration, marketing, or a related field would help prepare workers for these jobs. A degree in engineering, chemistry, or physics may help workers sell technical products. Workers with related work experience and a high school education or its equal may be advanced to these jobs.

Most employers give new workers formal and informal training. This training helps workers learn the policies, methods, and details of their work. The training period may last up to one year.

Jobs in real estate or insurance often require the worker to have a state or local license. These licenses are usually obtained by passing a written test.

OTHER CONSIDERATIONS

What else should you consider?

Most of the jobs in this group require workers to meet new persons. Some jobs involve traveling much of the time. Many workers are under pressure. They must make important decisions. These decisions affect sales or investments involving large sums of money.

Some workers receive a salary. Others work on a commission. This commission is usually a percent of the price of the goods or services sold. Some workers own their own businesses. Usually these owners receive little more than living expenses until the businesses show a profit.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

08.01 WTC sales technology

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.
7. Activities of a scientific and technical nature.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

4. Dealing with people.
5. Influencing people's opinions, attitudes, and judgments.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Analyzing
PEOPLE	☐	■	☐	– Persuading
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
L Light work.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	**Levels** Low to High 5 4 3 2 1
G – General	3 – 2
V – Verbal	3 – 2
N – Numerical	3 – 2
P – Form Perception	3
Q – Clerical Perception	3

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **4-5**.

Workers apply logical thinking and knowledge of marketing and merchandising to buy, sell, or promote the use of products or services. They collect data and draw valid conclusions to solve problems involved in marketing or sales. These workers interpret technical information and carry out instructions furnished in written, oral, diagram, or schedule form. They deal with abstract and concrete variables such as supply and demand, technical facts about products, construction equipment, and chemicals.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.

A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

C – College degree in marketing, business management, or related field.

T – One- or two-year technical school program in business, marketing, or a technical field.

V – Vocational school courses in distributive education.

NFT – Some occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 6 months up to and including 10 years (SVP 5, 6, 7, 8).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for entrance to post high school formal programs.
- Language Skills, Basic Math Skills.

OCCUPATIONS IN SALES TECHNOLOGY

Business-Opportunity and Property-Investment Broker	189.157-010
Buyer	162.157-018
Buyer, Assistant	162.157-022
Buyer, Grain	162.167-010
Commission Agent, Livestock	162.157-026
Comparison Shopper	296.367-014
Field-Contact Technician	162.117-026
Pawnbroker	191.157-010
Pharmaceutical Detailer	262.157-010
Sales Agent, Financial Services	251.257-010
Sales Agent, Insurance	250.257-010
Sales Representative, Advertising	254.357-014
Sales Representative, Aircraft Equipment and Parts	273.357-010
Sales Representative, Building Equipment and Supplies	274.357-018
Sales Representative, Chemicals and Drugs	262.357-010
Sales Representative, Construction Machinery	274.357-022
Sales Representative, Dental and Medical Equipment	276.257-010
Sales Representative, Education Courses	259.257-010
Sales Representative, Electronics Parts	271.357-010
Sales Representative, Foundry and Machine Shop Products	274.257-010
Sales Representative, Hotel Services	259.157-014
Sales Representative, Industrial Machinery	274.357-038
Sales Representative, Livestock	260.257-010
Sales Representative, Metals	274.357-054
Sales Representative, Oilfield Supplies and Equipment	274.357-058
Sales Representative, Public Utilities	253.357-010
Sales Representative, Printing	254.357-018
Sales Representative, Radio and Television Time	259.357-018
Sales Representative, Telephone Services	253.257-010
Tobacco-Warehouse Agent	259.357-038

GENERAL SALES

General sales are the selling of products or services to businesses, industries, or persons. Jobs in this group are found wherever there is contact with people for the purpose of selling. Settings include retail and wholesale stores and businesses.

WORK PERFORMED

What would you do as a worker in this group?

You would work in a store, call on customers in person, or contact people by telephone to sell products or services. You would perform one or more of the following tasks.

- Quote prices and credit terms to customers.
- Take orders or write contracts showing purchases and the method of payment.
- Help customers find the items they need.
- Take telephone orders for goods or services.
- Fill out charge slips or take cash and make change.
- Drive a truck on a route to sell to established customers.
- Keep records of sales made or travel expenses.

Beeline

A. Customer's home

Head
Head Yahoo
ROSSIGNOL

B. Retail Store

Which work environment would you enjoy?

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A pleasant voice and the ability to persuade are necessary tools for the telephone sales worker.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Speak clearly and hold the attention of others.
- Gain the trust of others through your attitude and behavior.
- Demonstrate or explain the use and special features of products sold.
- Compute numbers correctly to prepare sales contracts, figure costs, and make change.
- Keep records of sales, customers contacted, and personal expenses.
- Stay alert all day and be physically active as needed.

CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you had courses in sales, bookkeeping, or business math? Did you like these courses? Can you work with numbers?
- Have you worked in a grocery or other store? Do you like sales work?
- Have you sold items door-to-door for a class or civic group? Have you collected money or items for a charity? Do you like to meet people this way?
- Have you given oral reports in front of a group? Can you express your ideas easily?

PREPARATION

How can you prepare for and enter this type of work?

Most of the jobs in this group require a high school education or its equal. Many high schools, junior colleges, and community colleges offer helpful courses in selling or retailing. Some schools provide work study programs in which students work part-time as well as attend classes. Selling experience during vacations would also help prepare for this type of work.

In retail sales, a worker is expected to keep the merchandise in order and displayed attractively.

Employers usually provide on-the-job training. New workers learn about the company policies and the products or services to be sold. These training programs may last from one week to three months. Some jobs may require workers to have extra skills such as driving a truck or playing a musical instrument. Other jobs may require workers to make minor repairs or adjustments on the equipment they sell.

OTHER CONSIDERATIONS

What else should you consider?

Working hours vary in many retail sales jobs. Some stores stay open to the public on Sundays, holidays, or evenings. Selling work is usually done at the customer's convenience.

Some workers are paid by the hour. Others are paid according to how much they sell. Some workers' pay may combine both of these ways. Workers with sales experience are sometimes promoted to managers' positions.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

4. Dealing with people.
5. Influencing people's opinions, attitudes, and judgments.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
6. Activities involving the communication of ideas and information.

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08.02 WTC GENERAL SALES

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	■	☐	– Compiling
PEOPLE	☐	■	☐	– Persuading
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
L Light work.
M Medium work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	**Levels**				
	Low		to		High
	5	4	3	2	1
G – General			3		
V – Verbal			3		
N – Numerical			3		
Q – Clerical Perception			3		

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **3-4.**

Workers apply general knowledge of sales techniques and specific knowledge of products they sell. They interpret technical instructions presented in written, oral, or diagram form. These workers solve practical problems involving concrete variables such as keeping sales records, making change, or demonstrating a product.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter most occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

V – Vocational school courses in distributive education.
NFT – Most occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 3 months up to and including 2 years (SVP 4, 5, 6).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- ● Courses required for completion of high school.

OCCUPATIONS IN GENERAL SALES

Auctioneer	294.257-010
Building Consultant	250.357-010
Demonstrator	297.354-010
Demonstrator, Sewing Techniques	297.454-010
Driver, Sales Route	292.353-010
Driver Helper, Sales Route	292.667-010
Manufacturers' Representative	279.157-010
Sales Agent, Business Services	251.357-010
Sales Agent, Pest Control Service	251.357-018
Sales Agent, Real Estate	250.357-018
Salesperson, Automobile Accessories	273.357-030
Salesperson, Automobiles	273.353-010
Salesperson, Books	277.357-034
Salesperson, Burial Needs	279.357-042
Salesperson, China and Silverware	279.357-018
Salesperson, Corsets	261.354-010
Salesperson, Cosmetics and Toiletries	262.357-018
Salesperson, Curtains and Draperies	270.357-022
Salesperson-Demonstrator, Party Plan	279.357-038
Salesperson, Floor Coverings	270.357-026
Salesperson, Florist Supplies	275.357-054
Salesperson, Flowers	260.357-026
Salesperson, Flying Squad	279.357-046
Salesperson, Furniture	270.357-030
Salesperson, General Hardware	279.357-050
Salesperson, General Merchandise	279.357-054
Salesperson, Hearing Aids	276.354-010
Salesperson, Horticultural and Nursery Products	272.357-022
Salesperson, Household Appliances	270.357-034
Salesperson, Infants' and Children's Wear	261.357-046
Salesperson, Jewelry	279.357-058
Salesperson, Men's and Boys' Clothing	261.357-050
Salesperson, Men's Furnishings	261.357-054
Salesperson, Millinery	261.357-058
Salesperson, Musical Instruments and Accessories	277.357-038
Salesperson, Parts	279.357-062
Salesperson, Pets and Pet Supplies	277.357-042
Salesperson, Photographic Supplies and Equipment	277.357-050
Salesperson, Shoes	261.357-062
Salesperson, Sporting Goods	277.357-058
Salesperson, Stereo Equipment	270.357-038
Salesperson, Trailers and Motor Homes	273.357-034
Salesperson, Women's Apparel and Accessories	261.357-066
Salesperson, Yard Goods	261.357-070
Sales Representative, Apparel Trimmings	261.357-010
Sales Representative, Architectural and Engineering	276.357-010
Sales Representative, Barber and Beauty Equipment	275.357-010
Sales Representative, Bottles and Bottling Equipment	274.357-014
Sales Representative, Canvas Products	261.357-014
Sales Representative, Commercial Equipment and Supplies	275.357-018
Sales Representative, Door-to-Door	291.357-010
Sales Representative, Farm and Garden Equipment	272.357-014
Sales Representative, Food Products	260.357-014
Sales Representative, Footwear	261.357-018
Sales Representative, General Merchandise	279.357-014
Sales Representative, Hardware Supplies	274.357-034
Sales Representative, Hobbies and Crafts	277.357-010
Sales Representative, Home Furnishings	270.357-010
Sales Representative, Hotel and Restaurant Equipment	275.357-026
Sales Representative, Household Appliances	270.357-014
Sales Representative, Industrial Rubber Goods	274.357-042
Sales Representative, Jewelry	279.357-018
Sales Representative, Material-Handling Equipment	274.357-050
Sales Representative, Men's and Boys' Apparel	261.357-022
Sales Representative, Motor Vehicles and Supplies	273.357-022
Sales Representative, Musical Instruments and Accessories	277.357-014
Sales Representative, Novelties	277.357-018
Sales Representative, Office Machines	275.357-034
Sales Representative, Paper and Paper Products	279.357-026
Sales Representative, Petroleum Products	269.357-014
Sales Representative, Plastic Products	279.357-030
Sales Representative, Publications	277.357-022
Sales Representative, Recreation and Sporting Goods	277.357-026
Sales Representative, School Equipment and Supplies	275.357-042
Sales Representative, Textile Designs	274.357-066
Sales Representative, Tobacco Products and Smoking	260.357-022
Sales Representative, Toilet Preparations	262.357-014
Sales Representative, Upholstery and Furniture	259.357-026
Sales Representative, Women's and Girls' Apparel	261.357-038
Superintendent, Sales	250.157-010
Supervisor, Route Sales-Delivery Drivers	292.137-014
Telephone Solicitor	299.357-014
Travel Agent	252.157-010
Wedding Consultant	299.357-018

08.03 WTC

VENDING

Vending is the peddling of inexpensive items in public buildings, at public gatherings, or on street corners. Most jobs are found in restaurants, clubs, or sports arenas.

WORK PERFORMED

What would you do as a worker in this group?

You would draw attention to what you sell and make many quick sales. You would have to add mentally the total cost of several items. You would also need to make correct change quickly. You would perform one or more of the following tasks.

- Move through the stands during a spectator event and sell programs, novelties, or food items.
- Sell flowers, fruit, or ice cream from a pushcart or truck.
- Shout, gesture, sing, or ring bells to draw attention to what you are selling.
- Carry a tray of cigarettes or other items for sale in a restaurant or bar.

A street corner is this worker's "store."

Could you make change quickly and correctly in the middle of a large crowd?

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Speak clearly.
- Persuade others to buy your products.
- Add numbers mentally and make the right change.
- Walk or stand for long periods and sometimes carry the products you sell.

CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you sold programs or food at a community carnival or fair? Do you enjoy shouting or gesturing to get the attention of a crowd?
- Have you tried to sell products to raise money for a school or civic project? Did you sell the number of products assigned to you?
- Have you sold magazines or candy door-to-door? Do you like to approach people?
- Have you worked in a bake or rummage sale? Can you figure the cost of several items rapidly and make change correctly?

PREPARATION

How can you prepare for and enter this type of work?

Most jobs in this group are open to anyone. Formal training, education, or experience is seldom required. Workers may receive short instructions from their employers. These instructions usually include the selling price of items.

Have you helped raise money for a school project by selling candy?

Would you enjoy getting the attention of a crowd by shouting and gesturing?

OTHER CONSIDERATIONS

What else should you consider?

Jobs in this group are usually short-term. Few jobs provide permanent employment. However, large arenas and stadiums hire people for these jobs on a regular basis. These jobs provide experience that can be applied to other saleswork.

Some jobs in this group require the worker to be outside in all kinds of weather.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
3. Activities of a routine, definite, organized nature.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

4. Dealing with people.
5. Influencing people's opinions, attitudes, and judgments.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	■	☐	– Computing
PEOPLE	☐	■	☐	– Persuading
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
M Medium work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

08.03 WTC VENDING

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.
B Both: inside and outside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low to High 5 4 3 2 1
G – General	4
V – Verbal	4
N – Numerical	4 – 3
F – Finger Dexterity	4 – 3
M – Manual Dexterity	4 – 3

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **2.**

Workers apply common sense to sell products. They carry out detailed but simple written or oral instructions. These workers take orders, count items, and make change.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter most occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

NFT – Most occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from 30 days up to and including 3 months (SVP 2, 3).

Related High School Level Courses

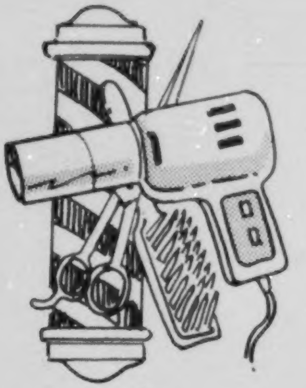
The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

OCCUPATIONS IN VENDING

Peddler	**291.457-018**
Photographer	**143.457-010**
Vendor	**291.457-022**

09.



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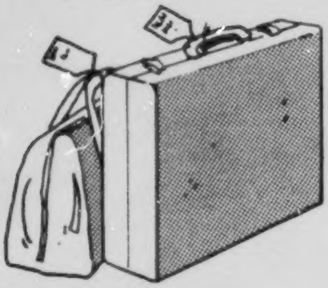
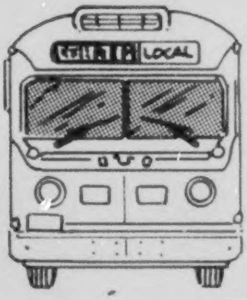
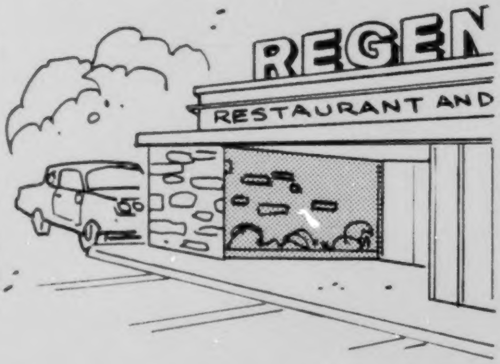


This is an interest in catering to and serving the desires of others, usually on a one-to-one basis.

You can satisfy this interest by providing services for the convenience of others. You may enjoy making others feel at ease by providing hospitality services. You may prefer to improve the appearance of others. Perhaps working in the hair and beauty care field would satisfy you. You may like to provide personal services such as taking tickets, carrying baggage, or ushering.





HOSPITALITY SERVICES

Hospitality services help people feel at ease and enjoy themselves. These services may involve planning and directing social events or guiding people through museums, cities, or countries. Airline, railroad, ship, and escort companies, as well as resorts and hotels, employ workers in this group. Jobs also can be found in social clubs.

WORK PERFORMED

What would you do as a worker in this group?

You would help visitors, travelers, or customers get acquainted with and feel at ease in a new setting. You would perform one or more of the following tasks.

- Welcome and seat guests in a hotel or restaurant.
- Accompany young people to concerts or sports events.
- Provide services for the safety and comfort of passengers.
- Guide clients through an industrial plant or a place of historical interest.
- Plan and direct guest activities at a resort or in a retirement home.

Restaurants often employ hosts or hostesses to make dinner reservations, greet customers, and seat guests.

Flight attendants serve meals and see to the comfort of the passengers.
American Airlines

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Use correct grammar.
- Converse easily with others and put them at ease.
- Give clear and accurate information.
- Adapt to tasks that may change often.
- Remain calm in emergencies.

CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you been a member of a school or civic group? Do you like to socialize?
- Have you had courses in speech? Do you like to speak to groups?
- Have you planned or organized a party? Can you lead others in games and group activities?
- Have you helped others learn to dance? Did they seem to enjoy the lesson?
- Have you been treasurer or secretary for a social group? Can you keep accurate records?

Do you enjoy organizing a party?

PREPARATION

How can you prepare for and enter this kind of work?

Employers provide on-the-job training for most jobs in this group. However, airplane flight attendants need formal training before being assigned a job. This training covers subjects such as personal grooming, in-flight service, and first aid. Most commercial airlines provide training programs. Some community colleges offer related courses.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Workers in this group often have to travel or live in hotels and resorts. Night or holiday work may be required. Some workers must wear uniforms.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
3. Planning and directing an entire activity.
4. Dealing with people.
7. Making decisions using personal judgment.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Coordinating
PEOPLE	☐	■	☐	– Supervising
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels				
	Low		to		High
	5	4	3	2	1
G – General			3		
V – Verbal			3		
Q – Clerical Perception		4 – 3			

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **4**.

Workers use personal judgment and reasoning to help people get to know a place of business, setting, or activity. They carry out a variety of instructions presented in written, spoken, or schedule form. These workers deal with the comfort and safety of others.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.
A – To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

T – Technical school programs for airplane flight attendants.
V – Vocational school courses in quantity food service.
NFT – Most occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 1 month up to and including 2 years (SVP 3, 4, 5, 6).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Language Skills.

OCCUPATIONS IN HOSPITALITY SERVICES

Airplane-Flight Attendant	352.367-010
Braker, Passenger Train	910.364-010
Butler	309.137-010
Counselor, Camp	159.124-010
Guide	353.367-010
Guide, Establishment	353.367-014
Host/Hostess	352.667-010
Host/Hostess, Dance Hall	349.667-010
Host/Hostess, Restaurant	310.137-010
Recreation Leader	195.227-014
Steward/Stewardess	350.677-022
Waiter/Waitress, Head	311.137-022

09.02 WTG

barbering and beauty services

Barbering and beauty services are intended to change or improve personal appearance. Barbering service includes haircuts, facial massages, scalp treatments, and shaves. Beauty service includes the care of skin and hair. Barber and beauty shops employ workers in this group. Some workers own and operate their own businesses.

WORK PERFORMED

What would you do as a worker in this group?

You would perform tasks to change or improve the appearance of others. You would usually specialize in one kind of service. You would perform one or more of the following tasks.

- Cut, shampoo, and curl or style hair.
- Give shaves as well as face, neck, and scalp massages.
- Bleach, tint, or dye hair.

Barbershop owners often work alongside their employees.

A hair stylist studies the customer's hair and facial features to select the right style.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Know skin and hair care techniques.
- Move eyes, hands, and fingers together.
- Maintain a clean and neat appearance.
- Handle customers with tact and courtesy.
- Stand for long periods.
- Distinguish between closely related colors when using tints and dyes.

CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you trimmed or cut a person's hair? Do you style your own hair? Do you like to try new and different hairstyles?
- Have you read health or beauty magazines? Do you like to keep informed of new grooming techniques?

Avenue School of Cosmetology

Bloomington Academy of Beauty Culture

Licensing requirements include academic study as well as hours of practical training.

PREPARATION

How can you prepare for and enter this kind of work?

Jobs in this group require state licenses. Both public and private schools offer courses that help people fulfill licensing requirements. Sometimes high school seniors are admitted to these schools. These students receive academic credit as well as vocational training.

Persons meeting the needed requirements may obtain state and federal financial aid. Agencies providing such aid include Social Security, the Bureau of Indian Affairs, and Job Corps. Some prviate schools offer scholarships. Also, apprenticeship programs are available.

Training requirements vary according to the job and state involved. These requirements range between 1,600 and 2,600 hours of training. Courses may include dermatology, physiology, scalp analysis, and haircutting techniques.

Trained persons must pass written and oral tests. A license granted by a state board is required in many states. A health certificate is also required to show that the worker is free from contagious diseases.

Trained workers may apply directly to employers for jobs. Schools, employment services, or trade and labor unions may refer workers to employers. Beauty shops, in some areas, may hire people who have not completed training. These trainees may shampoo hair, remove curlers, or stock supplies.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Workers may be required to provide and wear uniforms. Work hours may vary, including evenings and weekends.

Workers' pay usually depends on the number of customers they service and the kind of service they give. They rarely receive a straight salary. Most employers set the prices for services offered and the worker receives a portion of what is charged. The worker's pay may vary, depending on what supplies and tools the employer provides. Employers providing all needed supplies receive a larger share of the money collected. Workers may or may not accept tips.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
8. Activities involving creative thinking.
9. Activities involving processes, methods, or machines.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
4. Dealing with people.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

09.02 WTC barbering and beauty services

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Analyzing
PEOPLE	■	☐	☐	– Serving
THINGS	☐	☐	■	– Precision Working

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels				
	Low		to		High
	5	4	3	2	1
G – General			3		
V – Verbal			3		
S – Spatial			3		
P – Form Perception			3 –	2	
K – Motor Coordination				2	
F – Finger Dexterity			3		
M – Manual Dexterity			3		
C – Color Discrimination			3		

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **4**.

Workers use reasoning and personal judgment together with special knowledge and techniques related to cosmetology and barbering. They interpret instructions presented in written, spoken, diagram, or schedule form. These workers deal with concrete variables such as hair and skin problems as well as beauty and barbering tools and supplies.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter most occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

T – Barber and beauty school training programs.
V – Vocational school courses in cosmetology.

Training Time

Occupations in this group may require from over 6 months up to and including 2 years (SVP 5, 6).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

OCCUPATIONS IN BARBERING AND BEAUTY SERVICES

Barber	**330.371-010**
Cosmetologist	**332.271-010**
Hair Stylist	**332.271-018**

PASSENGER SERVICES

Passenger services are the transporting of people by bus, taxi, limousine, or other vehicle. The workers included in this group drive such vehicles or instruct and supervise those who do. Taxi, bus, or street railway companies hire most workers in this group. Some workers are employed by hospitals. Others work for branches of local government, such as public schools.

WORK PERFORMED

What would you do as a worker in this group?

You would drive a bus, taxicab, ambulance, limousine, or other land vehicle to transport passengers. You would follow a set route or directions given by passengers. You would obey set safety rules. Maintaining proper heat and ventilation for passenger comfort would be one of your duties.

You would perform one or more of the following tasks.

- Collect fares, make change, and help passengers with baggage.
- Give directions or other information to passengers.
- Make sure children behave on the school bus you drive.
- Inspect your vehicle and check the gas, oil, and water before departure and as needed.
- Keep your vehicle clean and attractive.
- Drive a taxi or bus according to state and federal traffic and safety laws.

As a bus driver, the safety of your passengers would be your responsibility.

Greyhound Lines, Inc.

Department of Labor

A bus driver greets passengers and inspects the vehicle before departure.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Operate a passenger transport vehicle and qualify for a chauffeur's license or other required credentials.
- Understand and follow federal, state, and local traffic rules.
- Judge distances and relationships of objects in space.
- Recognize a vehicle's malfunction by sound or other indications.
- Move eyes, hands, and feet together to start, stop, and steer the vehicle.
- Withstand the strain of frequent driving in traffic.
- Use courtesy and tact in dealing with people.

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you completed a driver's education course? Do you have a driver's or chauffeur's license?
- Have you driven a vehicle in heavy traffic? Does driving in traffic bother you?
- Have you taken care of your own car or one owned by your family? Can you tell when it needs tuning? Can you do minor service or repair work?
- Have you driven in a bicycle rodeo, car rally, or over a vehicle obstacle course? Did you receive a good score?
- Do you often read automotive magazines? Are you interested in work being done to improve car performance and safety?
- Have you driven a church or school bus? Do you mind driving a vehicle loaded with passengers?

Associate Taxi

Taxi drivers must know traffic laws and street locations as well as use tact and courtesy with customers.

PREPARATION

How can you prepare for and enter this kind of work?

Many employers require workers to have a high school education or its equal for these jobs. Intercity bus drivers must meet the following requirements set by the U. S. Department of Transportation. These workers must be able to talk with passengers and read and write to complete reports. They must also have good hearing, 20/40 vision with or without glasses, and full use of their arms and legs. Bus drivers must also take a written test about federal and state motor vehicle rules. If hired, they must take a driving test in the type of bus they will drive. Many intercity bus lines prefer workers with bus or truck driving experience. Most of these firms have their own training programs for new drivers.

Local bus drivers are usually required to have a state chauffeur's license. They also need to be of normal adult height and weight and have good eyesight and health. They are usually required to have one or two years of experience driving a large vehicle. Most local transit companies test all applicants for driving positions. These companies frequently provide training courses with both classroom and driving sessions. State departments of education set special rules for drivers of school buses.

Taxi drivers must have a state chauffeur's license. They may also need a special taxi operator's license. The local police, safety department, or public utilities commission may issue this license. Most large cities issue this license after the applicant has passed a written test on traffic laws and street locations. Many cities also require that workers have a good driving record and no criminal history.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Workers in these jobs may have to work nights and weekends. They may have to report for work on short notice.

Chances for promotion in all of these jobs are limited. Experienced bus drivers may obtain preferred routes and more pay. A few may become dispatchers or terminal managers. Taxi drivers may become garage chiefs or claims agents. Some workers buy and drive their own cabs.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
3. Activities of a routine, definite, organized nature.
9. Activities involving processes, methods, or machines.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

4. Dealing with people.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	■	☐	– Compiling
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	☐	■	☐	– Driving/Operating

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
M Medium work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low 5	 4	 to 3	 2	 High 1
G – General			3		
N – Numerical		4 –	3		
S – Spatial			3		
K – Motor Coordination			3		
M – Manual Dexterity			3		
E – Eye-Hand-Foot Coordination			3		

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **3-4**.

Workers use reasoning and personal judgment together with driving skills to transport passengers in motor vehicles. Some workers use their skills to instruct or supervise other workers. They follow instructions usually presented in oral or schedule form. These workers deal with concrete variables such as traffic regulations, meters, and schedules.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter most occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

NFT – Most occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 1 month up to and including 6 months (SVP 3, 4).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for the completion of high school.

OCCUPATIONS IN PASSENGER SERVICES

Bus Driver	913.463-010
Chauffeur	359.673-010
Chauffeur	913.663-010
Instructor, Driving	099.223-010
Supervisor, Cab	913.133-014
Taxi Driver	913.463-018

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09.04 WTG

CUSTOMER SERVICES

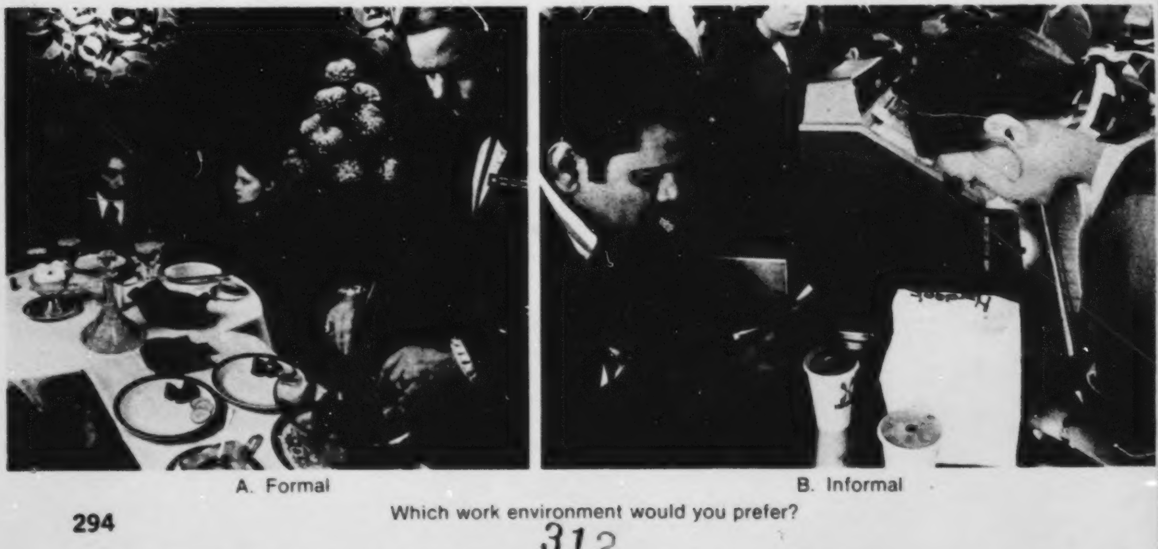
Customer services involve providing people with various services in commercial settings. Tasks usually include receiving payment and making change for the services rendered. Hotels, restaurants, resorts, and stores employ workers in this group. Some of these jobs are found on board trains, airplanes, and ships.

WORK PERFORMED

What would you do as a worker in this group?

You would assist customers by providing special services. You would perform one or more of the following tasks.

- Wait on tables in a restaurant or supper club.
- Rent bicycles, boats, fishing equipment, or trailer space in a resort area.
- Deliver newspapers and collect payment regularly from your customers.
- Serve customers in a drive-in or fast food business.
- Assign alleys, issue equipment, and receive fees at a bowling center.
- Mix and serve drinks to patrons in a bar.



A. Formal

B. Informal

Which work environment would you prefer?

You would talk to customers to identify their needs and provide the best service possible.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Talk and get along with all kinds of people.
- Move eyes, hands, and feet together to carry trays or drive motor vehicles.
- Add costs and make change.
- Use physical strength to carry sports equipment or newspapers.

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CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you sold things to raise money for clubs or local groups? Did you collect payment and keep records of sales?
- Have you given directions to anyone who was lost? Was the person able to understand your directions?
- Have you served food or beverages at a party or reception? Were you able to do so without dropping or spilling food or drinks?
- Have you had a part-time or full-time job which involved doing the same tasks? Do you enjoy this kind of work?

PREPARATION

How can you prepare for and enter this kind of work?

Most workers in this group learn their jobs after being hired. However, some employers hire only persons with experience. Workers may get the training and experience needed by starting in a related job. For example, a person may start as a dining room attendant and become a waiter or waitress.

Some high schools offer programs in subjects related to this group, such as food services. Government training programs are also available for some jobs in this group.

Do you have the physical strength to lift and carry newspapers?

Food and beverage service workers are often required to work at night and during weekends.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Food and beverage service workers often have changing work hours. They may work at night and during weekends and holidays. They usually must wear uniforms. The income of these workers is often wages and tips combined.

Some jobs require the worker to adapt to specific demands. For example, a newspaper carrier may have to work very early in the morning and in all kinds of weather. A lodging attendant may have to live on the premises.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

09.04 WTG CUSTOMER SERVICES

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
2. Activities involving business contact.
3. Activities of a routine, definite, organized nature.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

4. Dealing with people.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	■	☐	– Compiling
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
M Medium work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low to High 5 4 3 2 1
G – General	4 – 3
V – Verbal	4 – 3
N – Numerical	4 – 3
Q – Clerical Perception	4 – 3
K – Motor Coordination	4 – 3
F – Finger Dexterity	4
M – Manual Dexterity	4 – 3

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **2-3.**

Workers use basic skills and training to provide personal services to the public. They carry out specific, simple instructions. For example, these workers take orders, serve food, and park cars.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter most occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

NFT – Most occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from 30 days up to and including 3 months (SVP 2, 3).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Basic Math Skills

OCCUPATIONS IN CUSTOMER SERVICES

Automobile-Rental Clerk	295.477-010
Automobile-Self-Serve-Service-Station Attendant	915.477-010
Bar Attendant	312.477-010
Bartender	312.474-010
Car Hop	311.477-010
Cashier, Courtesy Booth	211.467-010
Conductor	910.667-014
Counter Attendant, Lunchroom or Coffee Shop	311.477-014
Curb Attendant	369.477-010
Customer-Service Clerk	299.367-010
Deliverer, Merchandise	299.477-010
Desk Clerk, Bowling Floor	340.367-010
Fountain Server	319.474-010
Gambling Dealer	343.467-018
Game Attendant	342.457-010
Manager, Branch Store	369.467-010
Manager, Food Concession	185.167-022
Newspaper Carrier	292.457-010
Parking-Lot Attendant	915.473-010
Sales Attendant	299.677-010
Sales Clerk	290.477-014
Sales Clerk, Food	290.477-018
Self-Service-Laundry-and-Dry-Cleaning Attendant	369.677-010
Tool-and-Equipment-Rental Clerk	295.357-014
Waiter/Waitress, Dining Car	311.477-022
Waiter/Waitress, Formal	311.477-026
Waiter/Waitress, Informal	311.477-030

09.05 WTC

ATTENDANT SERVICES

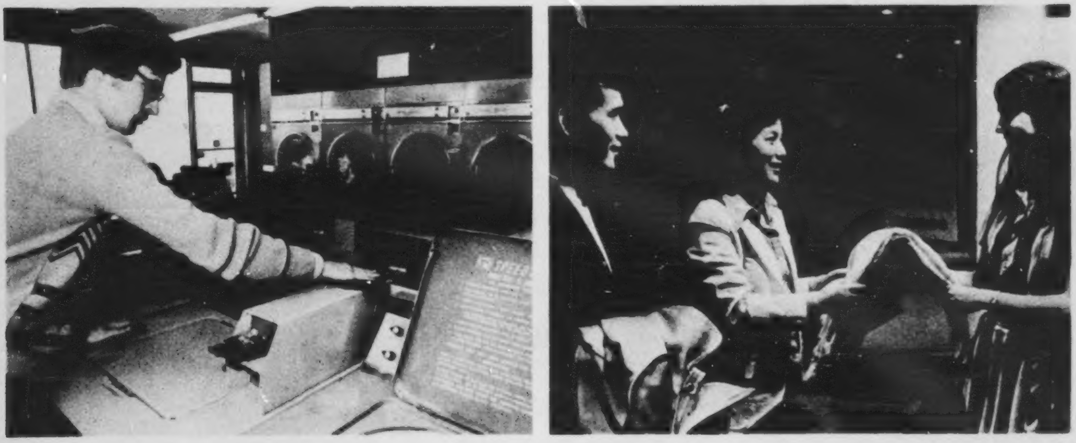
Attendant services are tasks performed for the comfort and convenience of other people. Attendant services take place in a variety of public and private settings. These settings include hotels, restaurants, athletic clubs, gambling casinos, reducing salons, and private homes. Airports, theaters, and sports arenas may employ these workers.

WORK PERFORMED

What would you do as a worker in this group?

Jobs in this group include personal services of many types. You would perform one or more of the following tasks.

- Serve as an attendant in a laundromat.
- Serve coffee or clear tables in a restaurant.
- Usher in a theater or sports arena.
- Hand out towels or check personal belongings in a locker room.
- Operate an elevator.
- Carry baggage to and from hotel rooms.
- Keep a rest room clean and supplied with paper towels and soap.
- Carry golf clubs for golfers.



You would keep an area clear or check personal belongings for the comfort or convenience of others.

Would you enjoy answering questions, hailing taxicabs, and assisting people into cars?

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Perform the same tasks over and over.
- Talk and get along with all kinds of people.
- Move hands and feet together to carry linens and lead people to their seats.
- Use physical strength to carry baggage or packages.
- Stand or walk most of a work day.

CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you collected tickets or ushered at a school play? Are you able to stay pleasant and courteous if people are rude?
- Have you served food or beverages in a cafeteria line? Does it bother you to stand for long periods of time?
- Have you helped others carry their baggage and parcels? Do you like to help others in this way?
- Have you been in charge of sports equipment for a team? Do you like this kind of duty?

You may want to volunteer to usher people at the next school play to test your interest.

PREPARATION

How can you prepare for and enter this kind of work?

Many jobs in this group require only on-the-job training. However, formal training is available for some jobs. For example, courses in food and beverage service are offered in some vocational schools. Many employers are willing to train people without experience.

OTHER CONSIDERATIONS

What else should you know about these jobs?

The income for these workers is often wages and tips combined. Some employers provide room and board. Weekend and evening work is required in some jobs. Most employers consider the personal appearance and attitude of the worker very important.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
3. Activities of a routine, definite, organized nature.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

4. Dealing with people.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	■	☐	☐	– Comparing
PEOPLE	■	☐	☐	– Serving
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
M Medium work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	**Levels** Low to High 5 4 3 2 1
G – General	4 – 3
V – Verbal	4 – 3
F – Finger Dexterity	4
M – Manual Dexterity	4 – 3

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **2-3.**

Workers use common sense to assist in helping the public. They carry out specific, simple instructions by following a routine. For example, these workers clear tables, open doors, and deliver messages.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter most occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

NFT – Most occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from 30 days up to and including 3 months (SVP 2, 3).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

OCCUPATIONS IN ATTENDANT SERVICES

Baggage Checker	357.477-010
Bagger	920.687-014
Bell Captain	324.137-014
Bellhop	324.677-010
Caddie	341.677-010
Cafeteria Attendant	311.677-010
Caterer Helper	319.677-010
Checkroom Attendant	358.677-010
Counter Attendant, Cafeteria	311.677-014
Counter-Supply Worker	319.687-010
Dining Room Attendant	311-677-018
Doorkeeper	324.677-014
Electrologist	339.371-010
Elevator Operator	388.663-010
Elevator Starter	388.367-010
Food-Service Supervisor	319.137-010
Food-Service Worker, Hospital	355.677-010
Hospital Entrance Attendant	355.677-014
Hot-Room Attendant	335.677-014
Locker-Room Attendant	358.677-014
Manicurist	331.674-010
Masseur/Masseuse	334.374-010
Mess Attendant	350.677-010
Porter	357.677-010
Racker	340.477-010
Restroom Attendant	358.677-018
Room-Service Clerk	324.577-010
Shoe Shiner	366.677-010
Ticket Taker	344.667-010
Usher	344.677-014

10.

HUMANITARIAN

This is an interest in helping individuals with their mental, spiritual, social, physical, or vocational concerns.

You can satisfy this interest through jobs in which a concern for the welfare of others is important. Perhaps the spiritual or mental well-being of others concerns you. You could seek a job in religion or counseling. You may prefer to help others with physical problems. You could work in the nursing, therapy, or rehabilitation field. You may like to provide needed but less difficult care by working as an aide, orderly, or technician.

SOCIAL SERVICES

Social services help people, either one person at a time or in groups. Workers in this group help people solve both day-to-day and special problems. These problems may be related to a person's social, personal, vocational, educational, or religious development. Churches, schools, guidance centers, and mental health clinics employ these workers. Agencies such as welfare, employment, vocational rehabilitation, and juvenile court also offer jobs in this group.

A minister serves the religious needs of the congregation.

WORK PERFORMED

What would you do as a worker in this group?

You would help people or groups of people deal with their personal, educational, social, vocational, or religious problems. Your work activities would depend on your specific area of training and interest. You would perform one or more of the following tasks.

- Preach or direct religious services.
- Counsel students on problems of educational and vocational planning.
- Plan and conduct group activities to help people develop values and goals.
- Counsel and assist troubled persons or families toward social adjustment and development.
- Help people with serious mental problems through counseling and other treatment.
- Help prison parolees find jobs and adjust to society.
- Investigate home conditions and determine needs for financial, medical, or mental help.
- Counsel people with physical or mental handicaps to help them secure training and employment.

A parole officer gains trust through tact, honesty, and sincerity.

The University of Kansas

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Complete graduate level college training.
- Understand the causes and possible solutions to personal and social problems.
- Care about the welfare and needs of others and have a desire to be of help.
- Inspire trust through tact, composure, and manner.
- Work with students or adults in groups.
- Prepare sermons or speeches and present them to a group.
- Know and work with local agencies providing counseling, guidance, and welfare services.
- Plan and direct guidance programs and use available resources.
- Understand and apply welfare, parole, or college admission policies and rules.
- Keep accurate records and write technical reports.

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CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Do you have a strong interest in helping others? Have you done volunteer work for a church group, a hospital, or a service club?
- Have you taken school courses in English composition and speech? Have you been on a debate team or in a speaking contest? Do you enjoy appearing before an audience?
- Have you taken school courses in psychology, sociology, or other social sciences? Do you like to study the behavior of people or groups of people?
- Do your friends come to you for advice or help on their personal problems? Do you enjoy trying to help them? Are you usually helpful?

Carle Foundation Hospital

Doing volunteer work in a hospital will help you test your interest in caring for and helping people.

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PREPARATION

How can you prepare for and enter this kind of work?

For most jobs in this group, education beyond the four-year college level is required. Social work or jobs in psychology often require two or more years of graduate study. Jobs in religion and clinical psychology also require specialized training. This training usually results in an advanced degree. School counseling jobs usually require a master's degree and one or two years of teaching experience. Many jobs in this group require certificates or other credentials.

Some workers enter this field as helpers in social, religious, or welfare groups. These workers receive on-the-job training. However, a professional worker usually needs to have specialized formal training. Some private agencies deal with problems of drug addicts, rape victims, or minority groups. These agencies accept actual experience and proven human relations skills in place of formal training.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Helping others may be more important than the amount of pay received for many workers in this group. Local recognition may also be important to them. Working hours may vary in some jobs. Weekend work and on call duties may be required. Some workers may deal with disturbed or highly sensitive people and handle confidential information.

Most workers must update their knowledge and skills. They read professional journals and study new policies and rules. They also attend seminars, summer schools, and workshops.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

4. Activities involving direct personal contact to help or instruct others.
5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.
8. Activities involving creative thinking.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
3. Planning and directing an entire activity.
4. Dealing with people.
7. Making decisions using personal judgment.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Coordinating
PEOPLE	☐	☐	■	– Mentoring
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
L Light work.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels				
	Low		to		High
	5	4	3	2	1
G – General				2 – 1	
V – Verbal				2 – 1	
N – Numerical			3		

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **5-6.**

Workers apply logical thinking to counsel others or help a person define and solve personal problems. These workers interpret and use a wide range of technical information and instructions presented in books, manuals, and diagrams. They also deal with concrete and abstract variables such as delinquency, rehabilitation, child welfare, and specialized teaching aids.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.
A – To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

G – Graduate degree in counseling, psychology, or special education.
C – Four-year degree in social work, religion, or related field.
T – One- and two-year technical school programs in social work.

Training Time

Occupations in this group may require from over 2 years up to and over 10 years (SVP 7, 8, 9).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

Important Courses

- Courses required for entrance to post high school formal programs.
- Language Skills.

Helpful Courses

- Sociology.

OCCUPATIONS IN SOCIAL SERVICES

Case Aide	195.367-010
Caseworker	195.107-010
Caseworker Supervisor	195.137-010
Christian Science Practitioner	129.107-014
Clergy Member	120.007-010
Counselor	045.107-010
Director of Counseling	045.107-018
Director of Religious Activities	129.107-018
Educational Therapist	094.227-010
Group Worker	195.164-010
Parole Officer	195.167-030
Probation Officer	195.167-034
Psychologist, Clinical	045.107-022
Psychologist, Counseling	045.107-026
Psychologist, School	045.107-034
Residence Counselor	045.107-038
Social Group Worker	195.107-022
Social Worker, Delinquency Prevention	195.107-026
Social Worker, Psychiatric	195.107-034
Social Worker, Medical	195.107-030
Social Worker, School	195.107-038
Teacher, Blind	094.227-014
Teacher, Deaf	094.224-010
Teacher, Handicapped Students	094.227-018
Teacher, Mentally Retarded	094.227-022
Veterans Contact Representative	187.167-108
Vocational-Rehabilitation Counselor	045.107-042

NURSING AND THERAPY SERVICES

Nursing and therapy services involve caring for and treating people to promote their physical and emotional well-being. Most workers in this group are concerned with ill and injured people. They also care for and treat people with physical handicaps. Some workers are involved in the prevention of health problems. Some workers train or supervise others engaged in the care and treatment of patients. Hospitals, nursing homes, and rehabilitation centers hire workers in this group. Schools, industrial plants, doctors' offices, and private homes also offer these jobs.

Department of Labor

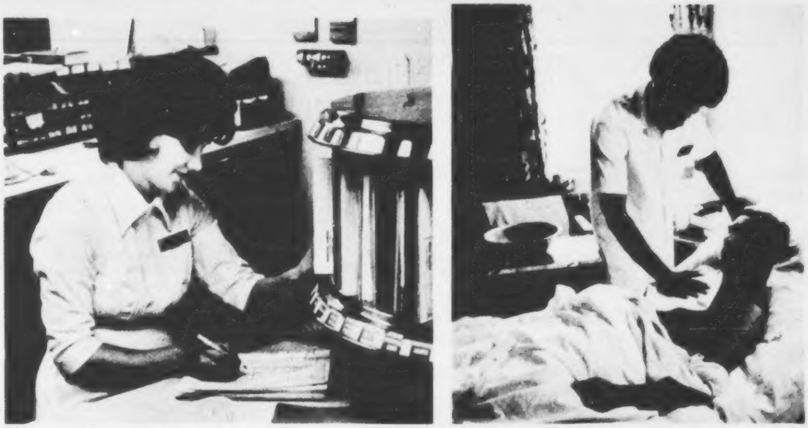
A dental hygienist educates patients to avoid future dental problems.

WORK PERFORMED

What would you do as a worker in this group?

You would provide nursing care or therapy services for the ill or physically handicapped. You would work to prevent health problems. You would perform one or more of the following tasks.

- Give nursing care to sick people in a hospital or nursing home.
- Assist a physician in a clinic or a doctor's office.
- Train handicapped persons to get in and out of bed, dress, prepare meals, or care for a home.
- Teach nursing students in a college or vocational school.
- Clean and X-ray teeth and give fluoride treatments.
- Plan and carry out a school health program.
- Use therapy methods and equipment to help restore patients' muscle function.
- Supervise workers who provide nursing care or therapy services.



A nurse's duties include keeping records as well as patient care.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Complete nursing or therapy training program.
- Care for the welfare and needs of others and have a desire to help.
- Follow instructions exactly and keep accurate records.
- Communicate with ill or handicapped people.
- Move eyes and hands together and use fingers with skill.
- Inspire trust through tact, composure, and manner.
- Instruct, plan, and oversee the work of others.

CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you taken science courses in school? Do you enjoy these courses?
- Have you worked as an aide in a hospital, nursing home, or such other setting? Do you like helping people who are ill or injured?
- Have you had school courses or other training in art, crafts, speech, or music? Would you like a job in which you use these skills to help others?

- Have you assembled or studied a plastic model of a human body? Are you interested in human anatomy?
- Have you had a course in first aid? Have you given emergency treatment to someone ill or injured?
- Have you taken a science course which required you to dissect an animal? Did it bother you?

PREPARATION

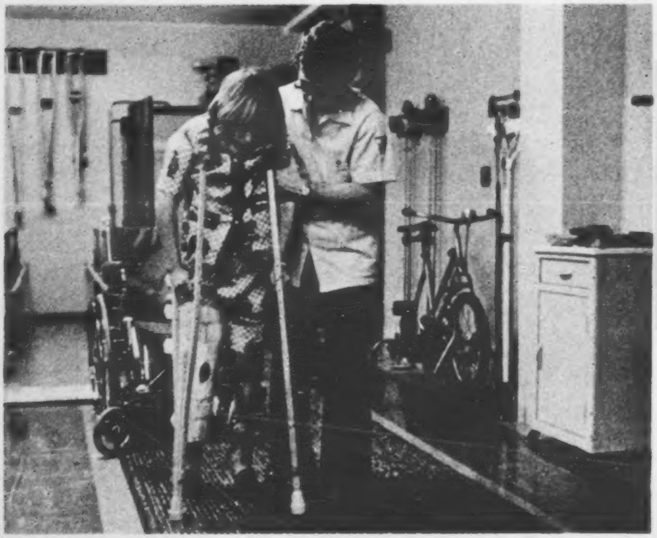
How can you prepare for and enter this kind of work?

People entering the nursing or therapy occupations must have special training beyond the high school level.

Three types of programs prepare students to become registered nurses. The diploma program, in general, is three years in length and hospital based. In some cases, students take basic science and liberal arts courses at nearby colleges. In other cases, students receive all instruction at the hospital school. These programs include instruction and clinical experience which prepare students to give nursing care to patients.

Community colleges, technical schools, or universities offer associate degree programs. In general, these programs are two years in length.

Bachelor's degree programs are, in general, four years in length. These programs offer the student a wider variety of courses, clinical experiences, and skills directly related to patient care.



Physical therapists help disabled people regain use of their bodies.

A course in first aid can help you prepare for a job as an emergency medical technician.

Graduates of all three programs are required to pass a state board test. Only then can a graduate be licensed as a nurse.

To enter most therapy programs, students must have a two-year associate degree or a four-year bachelor's degree in a related field. Training includes course work related to the specific kind of therapy as well as supervised clinical experience. Certificate programs are offered in physical therapy, vocational therapy, and other therapy areas. These are offered to students with a bachelor's degree in a related subject such as sociology or biology.

Graduates of most therapy programs must pass a test before they can be certified to practice.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Jobs in nursing and therapy may involve direct patient care, supervision, research, or teaching. These jobs may also combine these activities. Students interested in these jobs should start to take the basic courses early in their training.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

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10.02 WTG NURSING AND THERAPY SERVICES

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

4. Activities involving direct personal contact to help or instruct others.
6. Activities involving the communication of ideas and information.
7. Activities of a scientific and technical nature.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
4. Dealing with people.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Coordinating
PEOPLE	☐	■	☐	– Instructing
THINGS	☐	■	☐	– Manipulating

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
M Medium work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low 5	 4	 to 3	 2	 High 1
G – General				2	
V – Verbal			3 – 2		
N – Numerical			3 – 2		
S – Spatial			3		
P – Form Perception			3		
Q – Clerical Perception		4 – 3			
K – Motor Coordination		4 – 3			
F – Finger Dexterity			3		
M – Manual Dexterity			3		
C – Color Discrimination		4 – 3			

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 4-5.

Workers use technical knowledge and apply logical thinking to care for or administer treatment to sick or handicapped people. These workers interpret a variety of technical instructions presented in books, manuals, diagrams, or by supervisory workers. They deal with concrete and abstract factors such as prescribed medication and treatment, and patients' emotional adjustment.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter most occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

C – Four-year college degree in nursing or therapy.
T – Two- and three-year technical school and hospital programs.
V – Vocational school health courses.

Training Time

Occupations in this group may require from over 1 year up to and including 10 years (SVP 6, 7, 8).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

Important Courses

- Courses required for entrance to post high school formal programs.
- Biological Sciences.

Helpful Courses

- Sociology, Chemistry.

OCCUPATIONS IN NURSING AND THERAPY SERVICES

Art Therapist	076.127-010
Dental Hygienist	078.361-010
Emergency Medical Technician	079.374-010
Hypnotherapist	079.157-010
Industrial Therapist	076.167-010
Music Therapist	076.127-014
Nurse Anesthetist	075.371-010
Nurse, General Duty	075.374-010
Nurse, Head	075.127-018
Nurse, Instructor	075.121-010
Nurse, Licensed Practical	079.374-014
Nurse, Office	075.374-014
Nurse, Private Duty	075.374-018
Nurse, School	075.124-010
Nurse, Staff, Community Health	075.124-014
Nurse, Staff, Occupational Health Nursing	075.374-022
Nurse, Supervisor	075.127-022
Nurse, Supervisor, Community-Health Nursing	075.127-026
Occupational Therapist	076.121-010
Occupational Therapy Assistant	076.364-010
Orthoptist	079.371-014
Physical Therapist	076.121-014
Physical Therapist Assistant	076.224-010
Physician Assistant	079.364-018
Podiatric Assistant	079.374-018
Program Aide, Group Work	195.227-010
Radiologic Technologist	078.362-026
Recreational Therapist	076.124-014
Respiratory Therapist	079.361-010

child AND adult CARE

Child and adult care involves assisting in the physical care or welfare of others. Some workers assist in the care and treatment of the sick, injured, or physically handicapped. Other workers mainly care for young children or the elderly. Hospitals, clinics, day care centers, and nursery schools hire workers in this group. Treatment centers for the handicapped and private homes also provide jobs in this group.

WORK PERFORMED

What would you do as a worker in this group?

You would assist professional health workers in treating the ill or injured. You would care for children or elderly people. You would perform one or more of the following tasks.

- Help elderly persons bathe, feed, and dress themselves.
- Supervise children in a day care center or nursery school.
- Operate medical equipment as directed by trained personnel.
- Give emergency first aid.
- Prepare patients for examination and hand instruments to physician.
- Change bed linens or serve food to patients in a hospital.

Cornell University

Nursery school attendants care for the welfare and needs of children.

To perform these tasks with patience and tact, you should have a genuine desire to help people.

Department of Labor

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Understand and follow written or spoken instructions exactly in caring for the sick or injured.
- Move eyes, hands, and fingers skillfully to use medical equipment or instruments.
- Inspire trust through tact, composure, and manner.
- Care for the welfare and needs of children and elderly people. Have a desire to be of help.
- Talk and relate to ill or handicapped people.

CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you cared for children or sick people? Are you patient with and able to relate to those who cannot care for themselves?
- Have you had courses in first aid? Have you given emergency treatment to someone ill or injured?
- Have you worked as a volunteer in a hospital or nursing home? Are you concerned with the welfare of others?
- Are you good at games? Do you have some talent in art, music, or crafts? Would you enjoy teaching these to young children?

On the job training includes watching demonstrations given by experienced workers.

PREPARATION

How can you prepare for and enter this kind of work?

The training required to enter this kind of work does not usually exceed one year. Many employers prefer high school graduates. If the demand is critical, employers may hire workers with less education for some jobs. Hospitals and clinics offer on-the-job training for many jobs in this group. This training usually includes classroom instruction, demonstration, and supervised practice.

Local agencies, junior colleges, and vocational schools also offer training in some jobs.

Basic skills and experience in homemaking and child and adult care are important to some jobs.

OTHER CONSIDERATIONS

What else should you know about these jobs?

There is often great personal satisfaction in assisting others who need help.

Since health care is required 24 hours a day, working hours will be varied in many of the health occupations.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
3. Activities of a routine, definite, organized nature.
4. Activities involving direct personal contact to help or instruct others.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
4. Dealing with people.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.
10. Working within precise limits or standards of accuracy.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	■	☐	– Compiling
PEOPLE	■	☐	☐	– Serving
THINGS	☐	■	☐	– Manipulating

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
M Medium work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels				
	Low		to		High
	5	4	3	2	1
G – General			3		
V – Verbal			3		
Q – Clerical Perception		4 – 3			
K – Motor Coordination		4 – 3			
F – Finger Dexterity		4 – 3			
M – Manual Dexterity			3		

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **3 - 4.**

Workers use technical knowledge and common sense to assist with the care and treatment of sick or handicapped persons or with the care of children or elderly persons. These workers carry out instructions given to them in written or oral form. They deal with concrete variables such as hospital supplies, medical instruments, and nursery school or playroom equipment.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter most occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

V – Vocational school courses in health care or home economics.

NFT – Most occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 1 month up to and including 2 years (SVP 3, 4, 5, 6).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

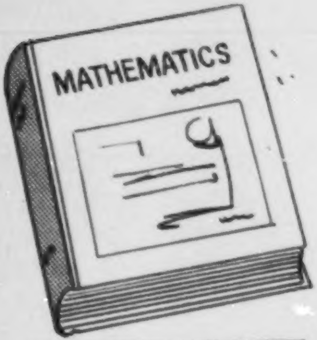
- Courses required for completion of high school.

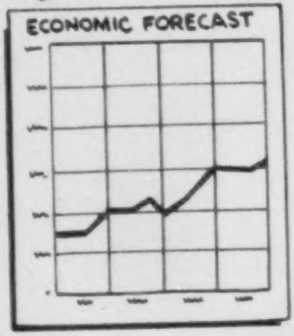
OCCUPATIONS IN CHILD AND ADULT CARE

Ambulance Attendant	355.374-010
Attendant, Children's Institution	359.677-010
Birth Attendant	354.377-010
Child-Care Attendant, School	355.674-010
Child Monitor	301.677-010
Children's Tutor	099.277-010
Companion	309.677-010
Dental Assistant	079.371-010
Electrocardiograph Technician	078.362-018
Electroencephalographic Technologist	078.362-022
Foster Parent	309.677-014
Guard, School-Crossing	371.567-010
Home Attendant	354.377-014
Medical Assistant	079.367-010
Nurse Aide	355.674-014
Nurse, Practical	354.374-010
Nursery School Attendant	359.677-018
Occupational Therapy Aide	355.377-010
Orderly	355.674-018
Physical Therapy Aide	355.354-010
Playroom Attendant	359.677-026
Psychiatric Aide	355.377-014
Surgical Technician	079.374-022

11.

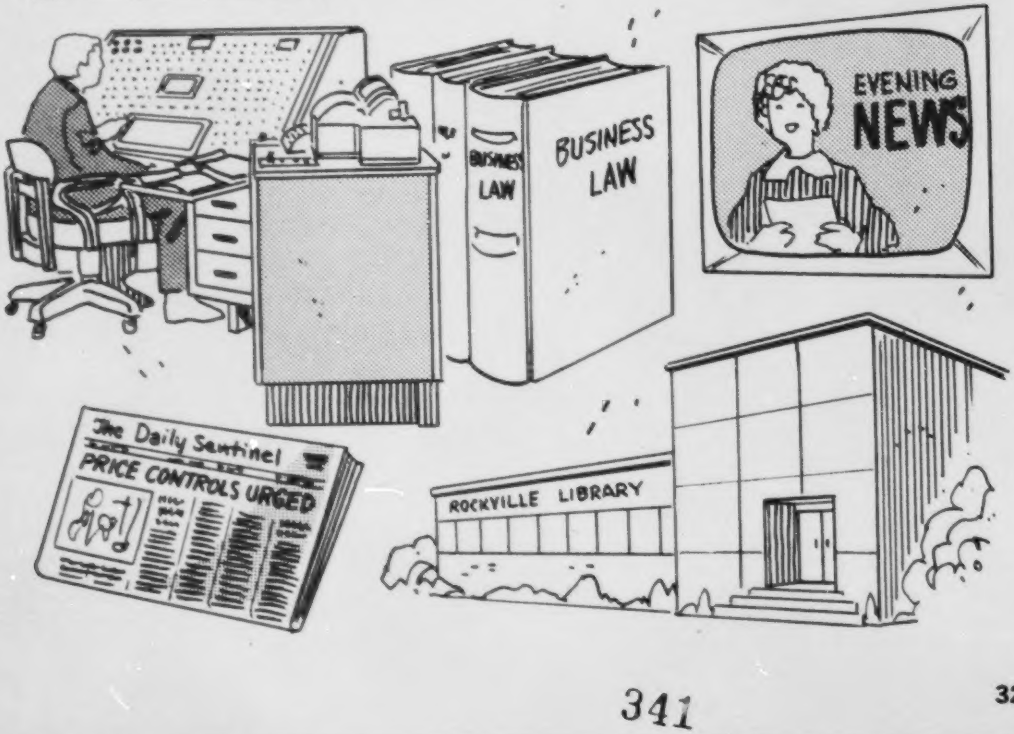
SOCIAL-BUSINESS


MATHEMATICS


ECONOMIC FORECAST

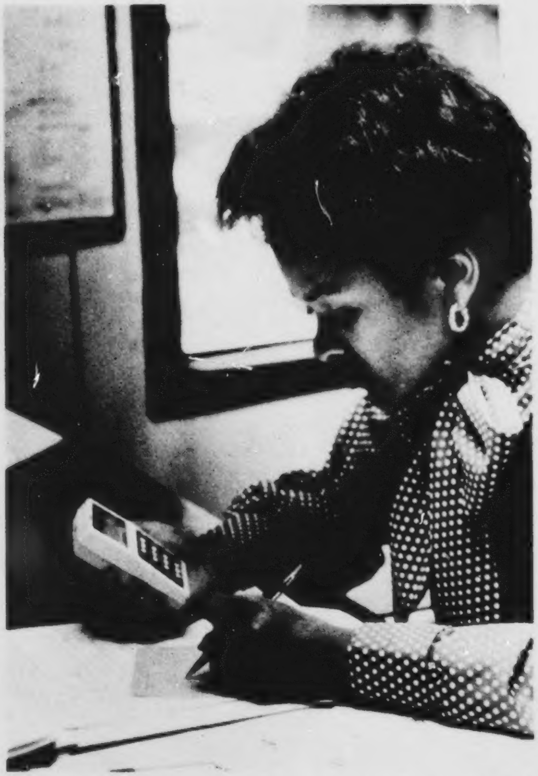
This is an interest in leading and influencing others through activities involving verbal or numerical abilities.

You can satisfy this interest through study and work in a wide variety of professional fields. You may enjoy the challenge and responsibility of leadership. You could seek work in administration or management. You may prefer to work with technical details. You could find a job in finance, law, social research, or public relations. You may like to help others learn. Perhaps working in education would satisfy you.


BUSINESS LAW
BUSINESS LAW
EVENING NEWS
The Daily Sentinel
PRICE CONTROLS URGED
ROCKVILLE LIBRARY

MATHEMATICS AND STATISTICS

Mathematics and statistics involve working with numerical data and computer systems. Workers in this group apply mathematics in theories to solve problems or conduct research. Colleges, firms, and government agencies which use computers to conduct statistical research employ these workers.



Actuaries gather and analyze statistics to calculate the probabilities of human deaths and accidents for insurance companies.

WORK PERFORMED

What would you do as a worker in this group?

You would analyze and interpret statistics or design computer programs and systems. You would perform one or more of the following tasks.

- Study data about human deaths, accidents, and illnesses to set premium rates for an insurance company.
- Forecast labor trends and recommend policies by studying labor supply and demand.
- Conduct studies of the birth and death rates.
- Convert business or scientific problems into numbers and symbols for computer processing.

Western Electric

Computer programmers must first analyze the problem to be solved before they can write the detailed instructions for processing the data.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Understand and use theories in mathematics.
- Apply principles of economics and statistics.
- Use personal judgment as well as provable facts to make decisions.
- Use computer technology to solve problems.
- Speak and write precisely.

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CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you taken advanced math courses? Can you understand the principles presented in these courses? Would you like to continue math studies?
- Have you used a pocket calculator? Can you use all of the basic functions built into the calculator?
- Have you worked with computer printouts? Have you had a course in computer science? Are you interested in working with computers?

PREPARATION

How can you prepare for and enter this kind of work?

Four or more years of college study in mathematics, economics, or statistics are required to enter this type of work. Some jobs require experience in banking, insurance accounting, or a related field. Experience and training in a scientific or technical field is needed for other jobs. Government agencies usually require applicants to pass a civil service test.

CUSTOMER SERVICE

You may have to work several years in a related field to gain the experience needed in some of the group's occupations.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Workers are expected to keep up with developments and trends in their specific area. They may attend seminars and workshops, or study for advanced degrees in the field.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

6. Activities involving the communication of ideas and information.
7. Activities of a scientific and technical nature.
9. Activities involving processes, methods, or machines.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

3. Planning and directing an entire activity.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Coordinating
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low to High 5 4 3 2 1
G – General	2 – 1
V – Verbal	2 – 1
N – Numerical	2 – 1
S – Spatial	2
Q – Clerical Perception	2

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **5 - 6.**

Workers apply logical thinking and scientific methods to collect, analyze, and apply numerical data and statistical concepts from which they draw valid conclusions. They deal with abstract variables such as numerical and statistical equations, charts, and graphs and with such concrete variables as data processing equipment.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.

A – To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

G – Graduate degree in mathematics, statistics, or computer programming.

C – Four-year college degree in mathematics, statistics, or computer programming.

V – Vocational school courses in data processing.

Training Time

Occupations in this group may require from over 2 years up to and over 10 years (SVP 7, 8, 9).

MATHEMATICS AND STATISTICS WTG 11.01

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for entrance to post high school formal programs.
- Algebra/Geometry, Advanced Math.

OCCUPATIONS IN MATHEMATICS AND STATISTICS

Actuary	020.167-010
Consultant	189.167-010
Engineering Analyst	020.067-010
Financial Analyst	020.167-014
Forms Analyst	161.267-018
Manager, Electronic Data Processing	169.167-030
Mathematical Technician	020.162-010
Operations-Research Analyst	020.067-018

Programmer, Business	020.162-014
Programmer, Chief, Business	020.167-018
Programmer, Detail	219.367-026
Programmer, Engineering and Scientific	020.167-022
Statistician, Applied	020.167-026
Statistician, Mathematical	020.067-022
Systems Analyst, Electronic Data Processing	012.167-066

EDUCATIONAL AND LIBRARY SERVICES

Educational and library services include teaching, counseling, and library work. Job settings are schools, colleges, libraries, and other educational agencies.

WORK PERFORMED

What would you do as a worker in this group?

You would teach or work in a library. You would perform one or more of the following tasks.

- Teach classes in an elementary or secondary school.
- Help students explore possible career alternatives and plan for further training.
- Conduct college courses for undergraduate or graduate students.
- Teach improved homemaking practices to adults and youth.
- Teach a trade in a vocational school.
- Plan and produce audio-visual materials for education or training programs.
- Demonstrate and teach new farming methods to adult farmers.
- Order, process, and loan books in a library.

Iowa State University

Elementary school teachers have responsibilities both inside and outside the classroom.

As a college instructor, you might supervise students in a biology lab.

Cornell University

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

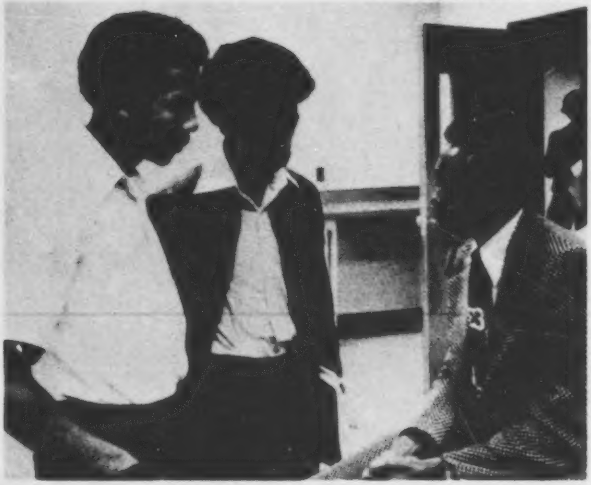
- Understand and apply basic principles of effective teaching.
- Gain respect and trust of students.
- Develop meaningful and interesting learning materials.
- Develop special skills and knowledge in one or more academic or vocational subjects.
- Use the standard system for maintaining a collection of books and other materials in a library.

CLUES

Do you have or can you develop these skills, abilities, and interests?
Your answers to the following questions will help you decide.

- Have you been a camp or playground instructor? Do you enjoy working with children?
- Have you helped others with their homework? Can you explain things clearly? Are you patient with those you help?
- Have you been a member of Future Teachers of America (FTA) or a similar group? Do you want to teach others?
- Have you helped a teacher grade papers or prepare teaching materials? Do you like this type of work?
- Have you helped a librarian catalog or shelve books? Do you like to work in libraries?

Department of Labor



A guidance counselor must have the respect and trust of students.

You may want to work in the school library during free periods to test your interest.

County extension agents must have several years of training and experience to help farmers solve agricultural problems.

U. S. Department of Agriculture

PREPARATION

How can you prepare for and enter this kind of work?

Four or more years of college study are required for most jobs in this group. School principals and college teachers must have graduate degrees. Teachers in public schools must have state certificates for the subjects or grade levels they teach. Certificate requirements vary among the states. However, certain levels of education and experience are standard. Vocational teachers usually must have several years of experience in business or industry. Counselors are usually required to have teaching experience and an advanced college degree.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Job openings in this group usually depend on the subject area, grade level, and teaching specialty. A decline or increase in the number of school age children in an area also influences openings. Most teachers are not required to work a twelve-month year. Many seek summer employment or continue their education when not teaching.

Teachers usually work the regular school day. In addition, they plan programs, keep records, grade papers, and attend meetings. Teachers may also supervise student activities after school hours. They may receive extra pay for some of these activities.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
4. Activities involving direct personal contact to help or instruct others.
5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
3. Planning and directing an entire activity.
4. Dealing with people.
7. Making decisions using personal judgment.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Analyzing
PEOPLE	☐	■	☐	– Instructing
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
L Light work.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels				
	Low		to		High
	5	4	3	2	1
G – General				2 – 1	
V – Verbal				2 – 1	
N – Numerical			3		
Q – Clerical Perception			3 – 2		

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **5-6.**

Workers apply logical thinking to the principles and techniques of teaching or providing library services. They communicate educational and vocational information to others or assist in providing reference materials. They deal with a variety of abstract and concrete variables such as human growth and development, learning processes, books, and periodicals. These workers deal with subject matter ranging in difficulty from beginning reading to nuclear physics.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter most occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

G – Graduate degree in education or library science.
C – Four-year college degree in education and the subject specialty.

Training Time

Occupations in this group may require from over two years up to and over 10 years (SVP 7, 8, 9).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for entrance to post high school formal programs.
- Subjects related to interest.

OCCUPATIONS IN EDUCATIONAL AND LIBRARY SERVICES

Acquisitions Librarian	100.267-010
Bookmobile Librarian	100.167-014
Catalog Librarian	100.387-010
Children's Librarian	100.167-018
Classifier	100.367-014
Community Dietitian	077.127-010
Counselor	045.107-010
County-Agricultural Agent	096.127-010
County Home Demonstration Agent	096.121-010
Dean of Students 1	090.117-010
Dean of Students 2	091.107-010
Dietitian, Teaching	077.127-022
Director, Religious Education	129.107-022
Faculty Member, College or University	090.227-010
Film-or-Tape Librarian	222.367-026
Four-H Club Agent	096.127-022
Home Economist	096.121-014
Homemaker	309.354-010
Instructor, Correspondence School	099.227-014
Instructor, Extension Work	090.227-018
Instructor, Physical Education	099.224-010
Instructor, Vocational Training	097.227-014
Librarian	100.127-014
Librarian, Special Collections	100.267-014
Librarian, Special Library	100.167-026
Library Assistant	249.367-046
Media Specialist, School Library	100.167-030
Music Librarian	100.367-022
Teacher, Adult Education	099.227-030
Teacher Aide 1	099.327-034
Teacher, Elementary School	092.227-010
Teacher, Industrial Arts	091.221-010
Teacher, Kindergarten	092.227-014
Teacher, Preschool	092.227-018
Teacher, Secondary School	091.227-010
Training Representative	166.227-010
Tutor	099.227-034
Young-Adult Librarian	100.167-034

SOCIAL RESEARCH

Cornell University

By developing plans which meet a community's long-range needs, urban planners help solve social, economic and environmental problems.

Social research is the study and analysis of information about people and societies. This work may include researching past events and cultures or studying and solving current social problems. Museums, schools and colleges, government agencies, and private research foundations employ workers in this group.

WORK PERFORMED

What would you do as a worker in this group?

You would collect, analyze, and interpret information about a person, a specific social group, or society as a whole. You would perform one or more of the following tasks.

- Conduct research on how people learn.
- Analyze and describe jobs and workers.
- Study a language and its function in a society or region.
- Do historical research to discover family origins.
- Study the ruins of an ancient culture.
- Conduct studies of the social and economic use of land for a city or county.

Department of Labor

This job analyst helps a company official reorganize the staff.

Department of Labor

Archivists in museums are responsible for preserving historical documents and artifacts.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Analyze, interpret, and report historical information.
- Understand and use theories and methods in fields such as history, sociology, and anthropology.
- Keep and organize detailed library research notes.
- Have an interest in history and the development of society.

CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you read articles about the problems of society? Would you like to help solve such problems as crime and poverty?
- Have you done research projects or surveys for social science classes? Do you like to do research?
- Have you had history courses? Do you like to read historical novels?
- Have you visited museums and historical sites? Would you like to dig for artifacts? Are you interested in ancient cultures?

PREPARATION

How can you prepare for and enter this kind of work?

Most jobs in this group require four or more years of college study in the social sciences. Advanced degrees in sociology, history, or archeology are required for many jobs. Courses in computer science or statistics are often needed to help workers process research data.

Iowa State University

COMPREHENSIVE
I PREVENTION
II TREATMENT

You would attend seminars and read professional journals to keep up with new trends in your specialty.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Workers in this group must keep up with the developments and trends in their field. They may attend workshops and seminars to keep informed in their specialty.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

6. Activities involving the communication of ideas and information.
7. Activities of a scientific and technical nature.
8. Activities involving creative thinking.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
4. Dealing with people.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Synthesizing
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
L Light work.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	**Levels** Low to High 5 4 3 2 1
G – General	2 – 1
V – Verbal	2 – 1
N – Numerical	3 – 2
Q – Clerical Perception	4 – 3 – 2

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **5-6.**

Workers apply logical thinking to the study of social theories, problems, or principles. They collect, anlayze, and interpret scientific data concerned with social problems. These workers deal with abstract and concrete variables such as language origins, job classification systems, and historical documents.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.

A – To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

G – Graduate degree in sociology, history, anthropology, or related specialty.

C – Four-year college degree in social work or public administration.

Training Time

Occupations in this group may require from over 2 years up to and over 10 years (SVP 7, 8, 9).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

SOCIAL RESEARCH WTG 11.03

Important Courses

- Courses required for entrance to post high school formal programs.
- Sociology, History.

Helpful Courses

- Biological Sciences, Government.

OCCUPATIONS IN SOCIAL RESEARCH

Anthropologist	055.067-010	**Psychologist, Educational**	045.067-010
Archeologist	055.067-018	**Psychologist, Engineering**	045.061-014
Archivist	101.167-010	**Psychologist, Experimental**	045.061-018
Employment Interviewer	166.267-010	**Psychologist, Industrial-Organizational**	045.107-030
Ethnologist	055.067-022	**Psychologist, Social**	045.067-014
Historian	052.067-022	**Research Assistant**	109.267-010
Job Analyst	166.267-018	**Research Worker, Social Welfare**	054.067-010
Occupational Analyst	166.067-010	**Scientific Linguist**	059.067-014
Political Scientist	051.067-010	**Sociologist**	054.067-014
Psychologist, Developmental	045.061-010	**Urban Planner**	199.167-014

LAW

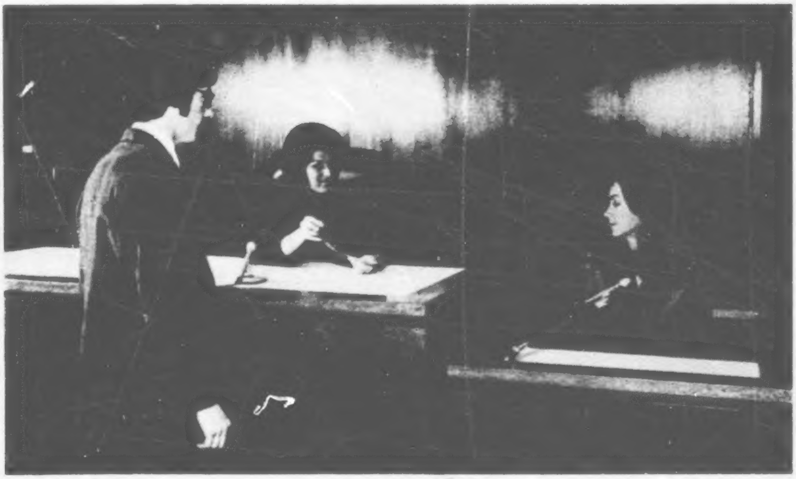
Law, as used here, involves applying the knowledge of laws to advise people and businesses on their rights and obligations. Workers in this group define the meaning of laws to use it in courts of law, hearings, and business activities. Law firms, government agencies, and private businesses employ these workers. Some workers may be self-employed and have their own practice. Others may be elected or appointed to public offices.

WORK PERFORMED

What would you do as a worker in this group?

You would represent clients or preside in a court of law or hearing. You would prepare legal papers or contracts. You would perform one or more of the following tasks.

- Defend a client accused of a crime.
- Prosecute accused lawbreakers.
- Prepare an application for a patent.
- Prepare contracts and deeds for the sale of real estate.
- Represent clients who are being sued.
- Advise a business firm about tax laws.
- Serve as a judge in a court of law.



As a judge or lawyer, you would advise people about their rights and obligations.

Delta Airlines

Lawyers research and organize legal information to defend their clients effectively in court.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Read and understand complex laws and case histories to identify important details.
- Speak with clients, witnesses, juries, judges, and other lawyers in an effective manner.
- Use exact legal terms and ideas to prepare contracts.
- Know the details of federal, state, county, and municipal laws or how to find them.
- Use proper courtroom procedures.
- Inspire the trust and confidence of clients and jurors.
- Pass a state bar exam to get a license to practice law.

CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you been on a debate team? Can you argue a point in an effective manner?
- Have you taken speech courses? Do you feel at ease when speaking before a group?
- Have you taken courses in journalism or in composition? Can you organize and write information to present a point of view?
- Have you attended a trial? Does the courtroom setting interest you?
- Have you done research papers? Can you use a library card file? Can you take and use detailed notes?

You can develop the speaking skills needed to present a court case in speech classes.

Cornell University

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PREPARATION

How can you prepare for and enter this kind of work?

Lawyers must pass a state bar exam to get a license to practice law. Required preparation for these tests vary among states. Some states require graduation from a law school. A four-year college degree and completion of a program for law clerks are required in some states. Other states accept persons who study law with a licensed lawyer. Correspondence law courses are accepted as preparation for testing in some states.

Entry requirements for law schools vary. Some schools accept students directly from high school. Others require students to have two or more years of college credit.

To obtain the licenses necessary to practice law in some higher courts, lawyers must meet special requirements. Some jobs in this group do not require a license. In these jobs, workers use their knowledge of law, but do not practice law.

Most lawyers start as junior partners in law firms, junior executives in business or industry, or workers in government agencies. A few establish their own law practice. However, lawyers usually need to earn enough money, experience, and reputation before they can become self-employed. Workers must be elected or appointed to some jobs in this group.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Some workers in this group receive set salaries. Lawyers in private practice get their income from fees. Sometimes, the size of a fee depends upon the outcome of a case. Some lawyers have long-term retainers. Clients pay the fees in advance to make sure the lawyer's services are available when they need them. Retainers provide a steady source of income.

Lawyers sometimes work long or irregular hours. Some jobs require them to respond to emergency calls from clients.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.
8. Activities involving creative thinking.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
4. Dealing with people.
5. Influencing people's opinions, attitudes, and judgments.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Synthesizing
PEOPLE	☐	☐	■	– Negotiating
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
L Light work.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low to High 5 4 3 2 1
G – General	2 – 1
V – Verbal	1
N – Numerical	3 – 2 – 1
Q – Clerical Perception	3

LAW WTC 11.04

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **5-6.**

Workers apply logical thinking to seek out, understand, interpret, and use legal principles and procedures. They define problems, collect data, establish factors, and draw valid legal conclusions. These workers deal with abstract and concrete variables such as court decisions, legality of contracts and wills, criminal defense, strategies, and legal documents.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.

A – To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

G – Graduate degree in law.

Training Time

Occupations in this group may require from over 4 years up to and over 10 years (SVP 8, 9).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

Important Courses

- Courses required for entrance to post high school formal programs.
- Composition, Speech, History, Government.

Helpful Courses

- Sociology.

OCCUPATIONS IN LAW

Abstractor	119.267-010
Arbitrator	169.107-010
Conciliator	169.207-010
District Attorney	110.117-010
Judge	111.107-010
Lawyer	110.107-010
Lawyer, Admiralty	110.117-018
Lawyer, Corporation	110.117-022
Lawyer, Criminal	110.107-014
Lawyer, Patent	110.117-026
Lawyer, Real Estate	110.117-034
Legal Investigator	119.267-022
Paralegal Assistant	119.267-026
Tax Attorney	110.117-038

BUSINESS ADMINISTRATION

Business administration is the management of a public agency or private business. Workers in this group develop operating procedures, analyze problems, and supervise workers. Businesses, industries, government agencies, unions, and professional groups employ these workers.

WORK PERFORMED

What would you do as a worker in this group?

You would plan, set policy, and make decisions. You would direct business activities, usually through managers or supervisors. You would perform one or more of the following tasks.

- Set business objectives for a company.
- Identify and solve the business problems of a firm.
- Manage operations of a department or section of a large business or agency.
- Run the daily operations of a city government.
- Preside at a board of directors' meeting of a company.
- Make arrangements for a professional group's conventions and workshops.
- Direct a state, federal, or local government agency.
- Serve as an elected state official.

You might serve on the board of directors of a company to help set business objectives and policies.

A housing project manager works with complex financial data to prepare budgets.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Understand all operations of a company or department.
- Analyze a variety of problems and make decisions daily.
- Work with complex financial and statistical information.
- Direct other management staff members.
- Speak and write clearly.

CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you held an office in a school, church, or community group? Can you work with others to make decisions?
- Have you taken part in Junior Achievement or a similar program? Did you plan and complete a business project?
- Have you taken part in class discussions? Do you state your ideas in meetings? Are your ideas accepted and understood?
- Have you taken economics or business courses? Do you like these subjects?

PREPARATION

How can you prepare for and enter this kind of work?

High level administrators are selected on the basis of performance in lower level jobs. Management experience within the same company, agency, or industry is usually required. Four or more years of college work are often required to get jobs that provide this experience. Degrees in business administration or law are needed for many jobs in this group. Some jobs require training and experience in such fields as engineering, chemistry, or sociology.

Some companies offer management training programs to prepare employees for jobs in this group. Employers sometimes place college graduates without experience in these training programs.

Sun Company

Management trainees work in all the operations of a business before they are given management responsibility.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Workers in this group are seldom free from the pressures of responsibility. They also face constant competition from others seeking high level jobs.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
3. Planning and directing an entire activity.
4. Dealing with people.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Coordinating
PEOPLE	☐	☐	■	– Negotiating
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	**Levels**				
	Low		to		High
	5	4	3	2	1
G – General				2	
V – Verbal				2	
N – Numerical			3 – 2		
Q – Clerical Perception			3		

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **5-6.**

Workers apply logical thinking to business principles, policies, and decision-making. These workers interpret technical information presented in mathematical, written, or diagram form. They deal with abstract and concrete variables such as profit and loss concepts, investment procedures, credit regulations, and merchandise.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

G – Graduate degree in business law.
C – Four-year college degree in business or a special field.
V – Vocational school courses in distributive education.

Training Time

Occupations in this group may require from over 2 years up to and over 10 years (SVP 7, 8, 9).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for entrance to post high school formal programs.

OCCUPATIONS IN BUSINESS ADMINISTRATION

Administrative Assistant	169.167-010
Association Executive	189.117-010
Business Manager, College or University	186.117-010
Business Representative, Labor Union	186.167-018
Civil Preparedness Officer	188.117-022
Commissioner, Public Works	188.117-030
Dietitian, Chief	077.117-010
Director, Industrial Relations	166.117-010
Director, Operations	184.167-018
Director, Program	184.167-030
Director, Safety Council	188.167-034
Director, Service	189.167-014
Director, Sports	184.167-034
Director, Unemployment Insurance	188.117-094
District Adviser	187.117-022
Editor, Managing, Newspaper	132.017-010
Executive Chef	187.161-010
Executive Vice President, Chamber of Commerce	187.117-030
Financial-Aids Officer	090.117-030
Freight-Traffic Consultant	184.267-010
Manager, Airport	184.117-026
Manager, Benefits	166.167-018
Manager, Branch	183.117-010
Manager, Brokerage Office	186.117-034
Manager, City	188.117-114
Manager, Compensation	166.167-022
Manager, Credit Card Operations	186.167-022
Manager, Credit Union	186.167-026
Manager, Employment	166.167-030
Manager, Export	163.117-014
Manager, Financial Institution	186.117-038
Manager, Housing Project	186.167-030
Manager, Industrial Organization	189.117-022
Manager, Labor Relations	166.167-034
Manager, Merchandise	185.167-034
Manager, Office	188.167-058
Manager, Operations	184.117-050
Manager, Personnel	166.117-018
Manager, Procurement Services	162.167-022
Manager, Sales	163.167-018
Manager, Station	184.117-062
Manager, Traffic	184.167-094
Manager, Utility Sales and Service	163.167-022
Postmaster	188.167-066
President	189.117-026
President, Financial Institution	186.117-054
Purchasing Agent	162.157-038
Registrar, College or University	090.167-030
Security Officer	189.167-034
Superintendent, Division	184.167-158
Superintendent, Plant Protection	189.167-050
Supervisor, Terminal Operations	184.167-242
Vice President	189.117-034
Vice President, Financial Institution	186.117-078
Wholesaler 1	185.167-070

11.06 WTC

FINANCE

Finance involves the design and control of financial records and the analysis of financial data. Workers in this group check financial record keeping systems for accuracy and supervise the work of others. Banks, loan companies, and investment firms employ these workers. Businesses, industries, colleges, and government agencies also hire these workers for their financial services.

WORK PERFORMED

What would you do as a worker in this group?

You would study and interpret financial data. You would control the financial records of a person or company. You would perform one or more of the following tasks.

- Design the forms and methods used to keep the financial records of a company.
- Examine the financial records of a business for error or fraud.
- Judge the values of materials, equipment, and property.
- Analyze credit information to determine the risk of loaning money to a firm or person.
- Study data and recommend shipping rates for airlines or trucking companies.
- Advise people or firms about buying and selling stocks and bonds.
- Prepare a budget for the operation of a company.

Four Seasons
REALTORS
662-9333

Real estate appraisers judge the value of a home by examining it carefully.

Accountants advise their clients on financial matters and prepare income tax forms for them.

A company would use your financial reports to make sound business decisions.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Compute math problems with speed and accuracy.
- Speak and write clearly to report financial information.
- Plan, organize, and direct the work of others.
- See details and spot errors when working with numbers.
- Estimate the value of materials and equipment.
- Apply the principles of accounting and auditing to design and analyze a record keeping system.

CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Do you have a checking or savings account? Does your balance always agree with the bank statement?
- Have you made a budget for your own money? Can you spend and save within that budget?
- Have you had courses in accounting or bookkeeping? Are math problems easy for you? Do you like to work with details and numbers?
- Have you served as a treasurer of a school or community group? Can you keep accurate financial records?

Test your interest and skills in working with budgets and financial records by serving as a club treasurer.

PREPARATION

How can you prepare for and enter this kind of work?

Experience in keeping financial records is usually required for jobs in this group. A college degree or courses in accounting, business law, economics, and investment help prepare workers for these jobs. Some workers are promoted to these jobs within the same company. Some jobs in this group requires licenses or certificates. Requirements vary from state to state.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Some workers in this group must learn the total operation of a business to interpret financial data with accuracy.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

1. Activities dealing with things and objects.
2. Activities involving business contact.
5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.
7. Activities of a scientific and technical nature.
9. Activities involving processes, methods, or machines.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

4. Dealing with people.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Coordinating
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	**Levels** Low to High 5 4 3 2 1
G – General	2
V – Verbal	2
N – Numerical	2
Q – Clerical Perception	3 – 2

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **5.**

Workers apply logical thinking and understanding of mathematical concepts to the operation of financial or economic systems. They interpret technical information presented in mathematical or diagram form. These workers deal with abstract and concrete variables such as financial records, record keeping systems, and computers.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.
A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

G – Graduate degree in business or finance.
C – Four-year college degree in accounting or finance.
T – One- or two-year technical school program in accounting or finance.
V – Vocational school courses in accounting.

Training Time

Occupations in this group may require from over 2 years up to and including 10 years (SVP 7, 8).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for entrance to post high school formal programs.
- Algebra/Geometry.

OCCUPATIONS IN FINANCE

Accountant	160.167-010
Accountant, Budget	160.167-014
Accountant, Cost	160.167-018
Accountant, Tax	160.162-010
Appraiser	188.167-010
Appraiser, Real Estate	191.267-010
Auditor	160.162-014
Auditor, County or City	160.167-030
Auditor, Tax	160.167-038
Broker-and-Market Operator, Grain	162.157-010
Broker's Floor Representative	162.157-014
Budget Officer	161.117-010
Controller	186.117-014
Credit Analyst	191.267-014
Credit Analyst, Chief	160.267-010
Foreign-Exchange Trader	186.167-014
Investigator	241.267-030
Loan Officer	186.267-018
Manager, Credit and Collection	168.167-054
Market-Research Analyst 1	050.067-014
Operations Officer	186.167-050
Rate Analyst, Freight	214.267-010
Rate Reviewer	214.387-014
Reserve Officer	186.167-054
Revenue Agent	160.167-050
Risk and Insurance Manager	186.117-066
Sales Agent, Securities	251.157-010
Securities Trader 1	162.157-042
Securities Trader 2	186.167-058
Treasurer	161.117-018
Treasurer, Financial Institution	186.117-070
Trust Officer	186.117-074
Underwriter	169.167-058

SERVICES ADMINISTRATION

Services administration is the management of agencies which provide health, welfare, education, or recreation services. Workers in this group usually supervise others who carry out the functions of a specific service. Schools, colleges, hospitals, prisons, community programs, and government agencies employ these workers.

WORK PERFORMED

What would you do as a worker in this group?

You would plan programs, set policies, and make decisions for a social service agency or institution. You would perform one or more of the following tasks.

- Manage the affairs of a university or a school system.
- Direct the welfare program of a city or county.
- Manage a hospital nursing service program.
- Direct a state agency providing services to the blind.
- Organize social services for a community by directing a planning council of several agencies.
- Plan and supervise the educational program of a school.

United Way of Champaign County

An agency director must be able to manage both people and funds.

This athletic director explains the new physical education program to the teaching staff.

This prison warden is considering improvements in the security system.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Speak and write in a clear and effective way.
- Analyze a variety of problems and make decisions daily.
- Organize the functions of various community and government service agencies.
- Work with complex financial and statistical information.

CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you done volunteer work for a hospital or social agency? Do you get satisfaction from helping others?
- Have you had courses in social studies? Do you like to deal with social problems?
- Have you been active in scouting or a member of a 4-H club? Would you like to direct a program of this type?
- Have you held an office in a school, church, or community group? Can you work with others to plan and take action?
- Have you taken part in class discussions? Do you state your ideas in meetings? Are your ideas accepted and understood?

PREPARATION

How can you prepare for and enter this kind of work?

Most jobs in this group require work experience within a specific service field, agency, or institution. Some jobs require college degrees in fields such as social work or education. Others require degrees in public administration or business management. Work experience is sometimes substituted for part of the education. Workers may transfer to different agencies or institutions.

Would you be able to explain hospital policies and procedures to new volunteers?

OTHER CONSIDERATIONS

What else should you know about these jobs?

Workers in this group are seldom free from the pressures of responsibility. Laws and public money influence the operation of these workers' programs.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
4. Activities involving direct personal contact to help or instruct others.
5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
3. Planning and directing an entire activity.
4. Dealing with people.
7. Making decisions using personal judgment.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Coordinating
PEOPLE	☐	☐	■	– Negotiating
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low 5	 4	 to 3	 2	 High 1
G – General				2	
V – Verbal				2	
N – Numerical			3		
Q – Clerical Perception			3		

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **5**.

Workers apply logical thinking and supervisory skills to the planning, supervision, and direction of social service programs, agencies, or institutions. Workers in this group usually deal with concrete and abstract variables such as program design, management theory, and financial reports.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

G – Graduate degree in administration or a special field.

C – Four-year college dgeree in business administration or a special field.

Training Time

Occupations in this group may require from over 4 years up to and over 10 years (SVP 8, 9).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for entrance to post high school formal programs.
- Sociology.

OCCUPATIONS IN SERVICES ADMINISTRATION

Academic Dean	090.117-010
Administrator, Hospital	187.117-010
Administrator, Social Welfare	195.117-010
Blood-Donor Recruiter	293.357-010
Business-Enterprise Officer	188.117-014
Community Organization Worker	195.167-010
Curator	102.017-010
Department Head, College or University	090.167-010
Director, Athletic	090.117-022
Director, Community Organization	187.117-014
Director, Educational Program	099.117-010
Director, Institution	187.117-018
Director, Instructional Material	099.167-018
Director, Nursing Service	075.117-022
Director of Admissions	090.167-014
Director, Preschool	092.137-010
Director, Special Education	094.117-014
District Extension Service Agent	096.161-010
Educational Specialist	099.167-022
Extension Service Specialist	096.127-014
Field Representative	189.267-010
Library Director	100.117-010
Manager, Education and Training	166.167-026
Medical-Record Administrator	079.167-014
Park Naturalist	049.127-010
President, Educational Institution	090.117-034
Principal	099.117-018
Public Health Educator	079.117-014
Recreation Supervisor	187.137-010
Superintendent, Recreation	187.117-054
Superintendent, Schools	099.117-022
Supervisor, Education	099.117-026
Welfare Director	188.117-126

COMMUNICATIONS

Communications include the writing, editing, and translating of nonfictional information. Some workers also read news reports on radio or television.

Newspapers, publishing firms, and radio and television stations employ these workers. Businesses, government agencies, and professional groups usually provide some openings.

WORK PERFORMED

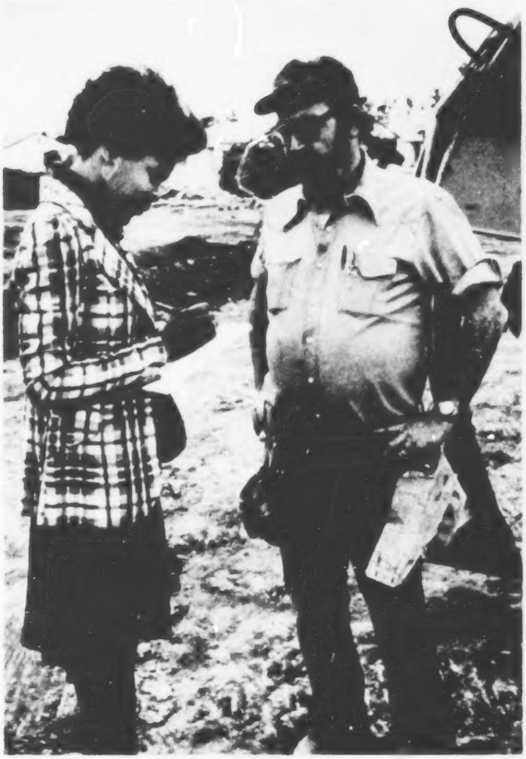
What would you do as a worker in this group?

You would select and prepare information for printing or broadcasting. You would perform one or more of the following tasks.

- Collect facts and write news reports.
- Supervise workers who write news reports.
- Prepare and read news reports for a television or radio station.
- Write or edit articles for a professional or technical magazine.
- Translate speeches or remarks from one language to another.

The New York Times

Large newspapers often have busy, noisy newsrooms where copy editors must still be able to concentrate and meet deadlines.



Reporters use verbal and written communication skills to collect facts and write news reports.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

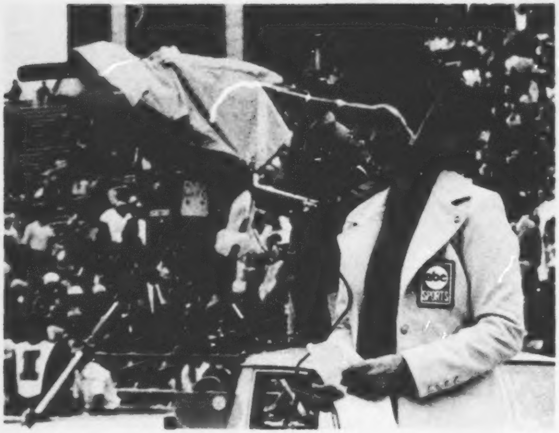
To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Use accurate grammar, punctuation, spelling, and sentence structure.
- Express ideas and information clearly.
- Plan, organize, and direct the work of others.
- Understand and use the technical language of one or more professional or scientific fields.
- Speak and write two or more languages fluently.
- Select ideas and information that would interest the public.

CLUES

Do you have or can you develop these skills, interests, and abilities? Your answers to the following questions will help you decide.

- Have you written book reports or research papers? Do you enjoy writing? Do you apply the rules of grammar, punctuation, and sentence structure in your work?
- Have you had to learn scientific and technical terms? Can you use them easily?
- Have you worked for a school or community newspaper? Did you interview people and write articles? Did you do any editing?
- Have you taken courses in public speaking? Do you feel at ease when speaking before a group?
- Have you taken courses in a foreign language? Can you speak or write fluently in that language? Do you speak a second language at home?



Some reporters work in fields where specialized background knowledge is required.

Working on your school yearbook can help you explore or confirm your interest in written communications.

PREPARATION

How can you prepare for and enter this kind of work?

Most jobs in this group require college courses in English, journalism, or a foreign language. Some jobs require a four-year college degree. Experience and skill in writing or broadcasting is sometimes a substitute for formal education.

Some jobs require knowledge and experience in a field such as sports, agriculture, music, or political science.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Workers in this group may work irregular hours. Some may travel or live in a foreign country. Gathering facts for news reporting may place the worker in hazardous situations.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
3. Planning and directing an entire activity.
4. Dealing with people.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Synthesizing
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	**Levels**				
	Low		to		High
	5	4	3	2	1
G – General				2 – 1	
V – Verbal					1
N – Numerical			3		
Q – Clerical Perception			3		

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **5.**

Workers apply logical thinking and verbal skills to write or edit communications materials. They interpret technical instructions presented in written form. These workers deal with abstract and concrete variables such as news analysis, broadcasting, and written reports.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.
A – To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

C – Four-year college degree in English, journalism, or foreign languages.

NFT -- Some occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 2 years up to and including 10 years (SVP 7, 8).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

Important Courses

- Courses required for entrance to post high school formal programs.
- Composition.

Helpful Courses

- Foreign Language.

OCCUPATIONS IN COMMUNICATIONS

Columnist/Commentator	131.067-010
Director, News	184.167-014
Editorial Assistant	132.267-014
Editor, City	132.037-014
Editor, Department	132.037-018
Editor, Dictionary	132.067-018
Editor, News	132.067-026
Editor, Newspaper	132.017-014
Interpreter	137.267-010
Newscaster	131.267-010
Newswriter	131.267-014
Reporter	131.267-018
Residence Supervisor	187.167-186
Translator	137.267-018
Writer, Technical Publications	131.267-026

PROMOTION

Promotion involves advertising products or services, raising money, or influencing the opinions of others. Some workers in this group deal directly with the public. Advertising agencies, business and industries, colleges, unions, professional groups, and government agencies employ these workers.

WORK PERFORMED

What would you do as a worker in this group?

You would plan and conduct advertising and public relations campaigns to inform or persuade people. You would perform one or more of the following tasks.

- Prepare product displays and give advice on how to increase sales.
- Direct a fund raising drive for a charity.
- Plan displays and demonstrations for fairs or trade shows.
- Contact legislators and public officials to promote the goals of a special interest group.
- Prepare information, pictures, and scripts for news releases and television advertising.
- Persuade radio stations to play new musical recordings.
- Plan and direct a membership drive for a chamber of commerce.

Advertising agency executives must create advertising programs that meet the client's approval.

An advertising manager supervises the preparation of an advertising campaign.

The Brown Shoe Company

As a fund raiser, you must be able to convince people to donate money for various causes.

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Create original ideas for advertising campaigns.
- Speak and write in a clear and convincing way.
- Supervise the work of others.
- Influence the opinions of others.

11.09 WTC PROMOTION

CLUES

Do you have or can you develop these skills, abilities, and interests?

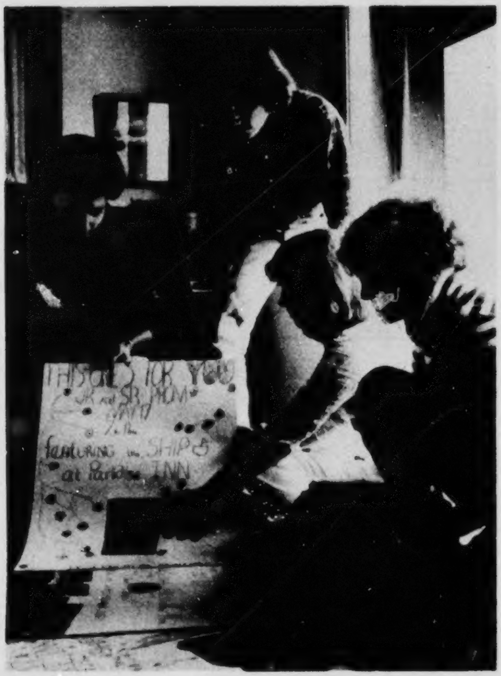
Your answers to the following questions will help you decide.

- Have you organized ticket sales for a school or community event? Did you plan the publicity?
- Have you made posters for a school or community event? Did they attract attention?
- Have you written advertising copy for a school yearbook or newspaper? Do you like this kind of writing?
- Have you worked in a political campaign? Did you help think of ways to influence the opinion of the voters?
- Have you sold items to raise money for a school or community group? Can you persuade people to buy things?

PREPARATION

How can you prepare for and enter this kind of work?

Many of the jobs in this group require a college degree in communications or public relations. Some jobs also require experience in a specific business or industry. Workers may need up to ten years to gain the education and experience required for some jobs.



Can you plan and promote school events?

OTHER CONSIDERATIONS

What else should you know about these jobs?

Long hours and weekend work may be required in these jobs. Workers often face strict deadlines and standards.

Workers who build a good reputation in this field are often sought by other employers and offered better jobs.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
5. Activities resulting in recognition or appreciation from others.
7. Activities involving the communication of ideas and information.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
3. Planning and directing an entire activity.
4. Dealing with people.
5. Influencing people's opinions, attitudes, and judgments.
7. Making decisions using personal judgment.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Coordinating
PEOPLE	☐	☐	■	– Negotiating
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
L Light work.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels				
	Low		to		High
	5	4	3	2	1
G – General				2	
V – Verbal				2	
N – Numerical			3 – 2		
Q – Clerical Perception		4 – 3			

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **5**.

Workers apply logical thinking to design and carry out programs to promote goodwill, sales, or financial assets of a business or organization. These workers collect data, establish facts, and come to valid conclusions about the image building needs of an establishment. They deal with abstract and concrete variables such as advertising copy, business reports, and fund raising ideas.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

C – Four-year college degree in advertising, communications, or marketing.

V – Vocational school courses in distributive education.

Training Time

Occupations in this group may require from over 4 years up to and over 10 years (SVP 8, 9).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for entrance to post high school formal programs.
- Composition, Speech.

OCCUPATIONS IN PROMOTION

Account Executive	164.167-010
Director, Fundraising	165.117-010
Fashion Coordinator	185.157-010
Foreign-Service Officer	188.117-106
Fund Raiser 1	293.157-010
Goodwill Ambassador	293.357-018
Lobbyist	165.017-010
Manager, Advertising	163.167-010
Manager, Advertising	164.117-010
Manager, Promotion	163.117-018
Membership Director	189.167-026
Police Lieutenant, Community Relations	375.137-018
Public-Relations Representative	165.067-010

11.10 WTC

REGULATIONS ENFORCEMENT

Regulations enforcement is the enforcing of laws about finance, people's rights, health and safety, and similar matters. However, workers in this group are not part of a police force. These workers examine procedures, products, and services to assure that government regulations are followed. Most jobs in this group are found in government agencies. Businesses also hire workers in this group to enforce company policies.

WORK PERFORMED

What would you do as a worker in this group?

You would investigate and inspect to make sure that regulations are being followed. You would perform one or more of the following tasks.

- Regulate the entry of persons into the United States.
- Investigate cases of cruelty to animals.
- Investigate claims of unfair hiring practices.
- Examine bank records to see if state banking laws are followed.
- Enforce customs regulations by inspecting baggage of persons coming into the United States.
- Inspect food processing plants to enforce sanitation laws.
- Inspect a factory to see that workers' safety and health are protected.
- Pose as a shopper to investigate the honesty of clerks in a department store.

U. S. Customs Service

Customs inspectors examine baggage of people entering the country to insure that all products being brought in are declared.

Equal opportunity consultants advise personnel managers on hiring practices.

American Motors Corporation

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Know the details of the laws or regulations that must be enforced.
- Write and speak clearly and precisely.
- Make decisions and judgments based on laws and regulations.
- Use firm but courteous behavior in a variety of situations.
- Pay attention to fine details in written or numerical information.

11.10 WTG REGULATIONS ENFORCEMENT

CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you been interested in consumer protection or public safety? Would you like to help solve problems in these areas?
- Have you had summer or part-time experience in a factory? Do you understand safety regulations?
- Have you been in charge of a group or class? Can you maintain order? Do you like to enforce rules?
- Have you dealt with people who disagree with you? Do you consider yourself a tactful person?

PREPARATION

How can you prepare for and enter this kind of work?

The education and experience required vary among the jobs in this group. In some cases, clerical or other workers within a company or agency are promoted to these jobs. Other jobs require a college degree in accounting or other special fields.

Many jobs in this group are in government agencies and require workers to pass a civil service test. Some jobs are filled by political appointment.

U. S. Army

Food and drug inspectors use their technical knowledge of meat grading standards to protect the public.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Many of these jobs require workers to wear uniforms. Some workers must speak and write more than one language to deal with people from other countries.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
6. Activities involving the communication of ideas and information.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
3. Planning and directing an entire activity.
4. Dealing with people.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Coordinating
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
5. Talking and/or hearing
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.
B Both: inside and outside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low to High 5 4 3 2 1
G – General	3 – 2
V – Verbal	3 – 2
N – Numerical	3
S – Spatial	4 – 3
P – Form Perception	4 – 3
Q – Clerical Perception	3

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **5.**

Workers apply logical thinking and technical knowledge to conduct investigations and inspections. These workers collect data, establish facts, and come to valid conclusions concerning the enforcement of government regulations. They deal with abstract and concerte variables such as immigration, customs and postal laws, as well as safety and fire prevention techniques.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.
A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

C – Four-year college degree in accounting, allied health, or other specialty.
T – One- and two-year technical school programs in accounting, sanitation, and public administration.
NFT – Some occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 1 year up to and including 10 years (SVP 6, 7, 8).

REGULATIONS ENFORCEMENT WTC 11.10

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

Important Courses

- Courses required for entrance to post high school formal programs.
- Language Skills.

Helpful Courses

- Government, Health.

OCCUPATIONS IN REGULATIONS ENFORCEMENT

Animal Treatment Investigator	379.263-010	**Inspector, Agricultural Commodities**	168.287-010
Customs Inspector	168.267-022	**Investigator**	168.267-062
Deputy Insurance Commissioner	186.117-022	**Mine Inspector**	168.267-074
Director, Consumer Affairs	188.117-050	**Revenue Officer**	188.167-074
Equal-Opportunity Representative	168.167-014	**Safety Coordinator**	909.127-010
Fire Inspector	373.267-010	**Safety Inspector**	168.167-078
Food and Drug Inspector	168.267-042	**Safety Inspector**	168.264-014
Health Officer, Field	168.167-018	**Sanitarian**	079.117-018
Immigration Inspector	168.167-022	**Shopping Investigator**	376.267-022
Industrial Hygienist	079.161-010		

BUSINESS MANAGEMENT

Business management means to direct the activities of a company or a store. Workers in this group carry out operating policies and procedures and supervise others. All types of businesses employ these workers. These businesses include hotels, recreation centers, and stores as well as transportation and service companies. Some government agencies also hire these workers.

WORK PERFORMED

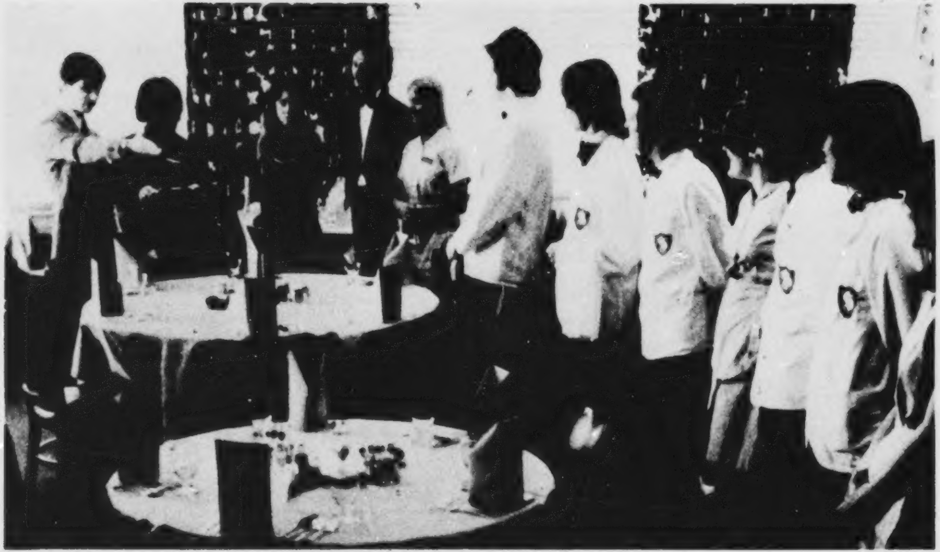
What would you do as a worker in this group?

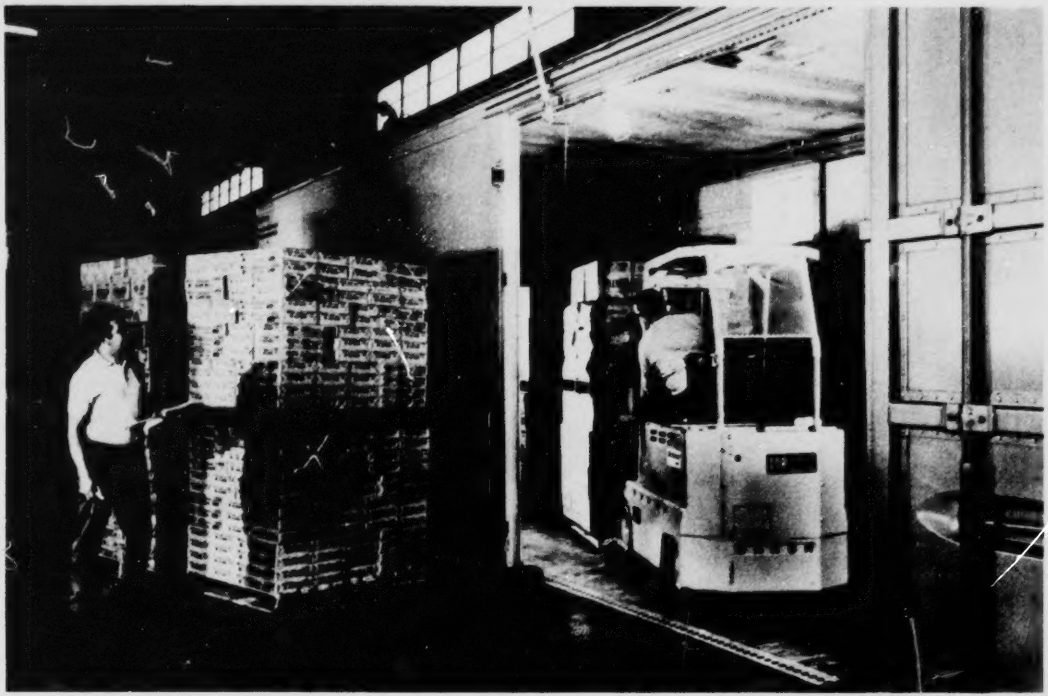
You would direct the affairs of a business or company. You would perform one or more of the following tasks.

- Plan and oversee services to guests in a hotel.
- Direct activities at a dude ranch.
- Manage customer services for an airline at an airport.
- Manage a private employment agency.
- Manage a furniture store.
- Operate a tool rental firm.

A restaurant manager organizes the work of others to insure the efficient operation of the business.

Cornell University





General Foods Corporation

A distribution warehouse manager takes inventory and notifies customers when the stock is low.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Direct activities according to the policies and procedures set by a company.
- Read charts, graphs, and reports about business affairs.
- Prepare budgets, keep financial records, and take inventory.
- Use tact and courtesy to deal with the public.
- Speak and write clearly.
- Supervise others to insure efficient operation of the business.

CLUES

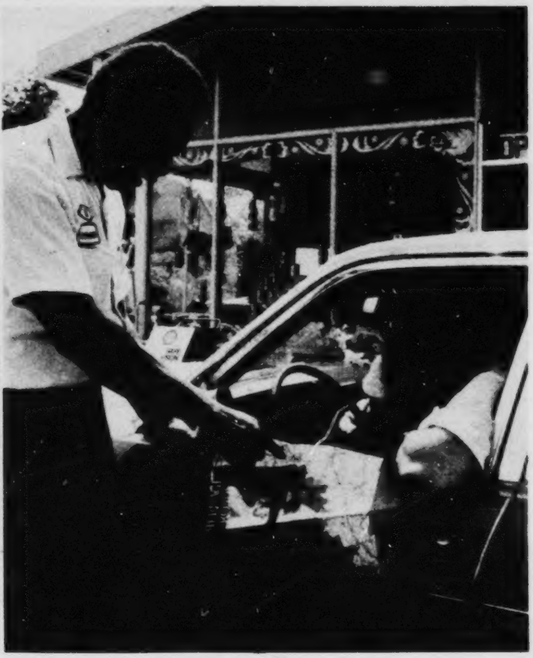
Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you been in charge of a committee or group activity? Can you supervise others?
- Have you been in charge of a committee or group activity? Can you lead others to work well together?
- Have you held an office in a school, church, or community group? Do others respect your judgment?
- Have you taken courses in business or accounting? Do you like business subjects?

Can you give clear and precise instructions to others?

In a smaller business, the manager may sometimes do the work of his or her employees.



PREPARATION

How can you prepare for and enter this kind of work?
Many jobs in this group are reached by promotion within a company or store. College studies are not always required but a degree in business management is helpful. Vocational or technical school programs in hotel or restaurant management are required for some jobs. Experience is accepted as a substitute for education in some cases. Some workers transfer to other companies to get jobs in this group.

OTHER CONSIDERATIONS

What else should you know about these jobs?
Some workers in this group work long hours to cover staff shortages or meet emergencies. In large companies, policies are usually set by higher level administrators and approved by a board of directors. The business manager is responsible only for carrying out the policies.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
5. Activities resulting in recognition or appreciation from others.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
3. Planning and directing an entire activity.
4. Dealing with people.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Coordinating
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
L Light work.
5. Talking and/or hearing
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.
B Both: inside and outside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	**Levels** Low to High 5 4 3 2 1
G – General	3 – 2
V – Verbal	3 – 2
N – Numerical	3
P – Form Perception	4 – 3
Q – Clerical Perception	3

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **5**.

Workers apply logical thinking and principles of business systems to insure the efficient operation of a variety of business concerns. They define problems and evaluate facts to make decisions concerning workers and their activities. Workers in this group interpret instructions presented in mathematical or diagram form. They deal with abstract and concrete variables such as operational procedures, work schedules, and work tasks.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

C – Four-year college degree in business management.
T – Technical school courses in hotel or restaurant management.
V – Vocational school courses in home economics, distributive education, or quantity food areas.
NFT – Some occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 1 year up to and including 10 years (SVP 6, 7, 8).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for entrance to post high school formal programs.
- Language Skills, Basic Math Skills.

OCCUPATIONS IN BUSINESS MANAGEMENT

Commissary Manager	185.167-010
Conductor, Passenger Car	198.167-010
Conductor, Road Freight	198.167-018
Director, Camp	195.167-018
Director, Food Services	187.167-026
Director, Funeral	187.167-030
Director, Recreation Center	195.167-026
Executive Housekeeper	187.167-046
Manager, Apartment House	186.167-018
Manager, Automobile Service Station	185.167-014
Manager, Barber or Beauty Shop	187.167-058
Manager, Boarding House	320.137-010
Manager, Bus Transportation	184.167-054
Manager, Cemetery	187.167-074
Manager, Department	299.137-010
Manager, Distribution Warehouse	185.167-018
Manager, Flight Kitchen	319.137-014
Manager, Food Service	187.167-106
Manager, Golf Club	187.167-114
Manager, Health Club	339.137-010
Manager, Hotel or Motel	187.117-038
Manager, Industrial Cafeteria	319.137-018
Manager, Insurance Office	186.167-034
Manager, Liquor Establishment	157.167-126
Manager, Lodging Facilities	320.137-014
Manager, Machinery-or-Equipment Rental and Leasing	185.167-026
Manager, Meat Sales and Storage	185.167-030
Manager, Parts	185.167-038
Manager, Property	186.167-046
Manager, Recreation Establishment	187.117-042
Manager, Retail Store	185.167-046
Manager, Sales	187.167-138
Manager, Service Department	187.167-142
Manager, Skating Rink	187.167-146
Manager, Station	184.167-082
Manager, Storage Garage	187.167-150
Manager, Theater	187.167-154
Manager, Tobacco Warehouse	185.167-054
Manager, Traffic	184.117-066
Manager, Truck Terminal	184.167-110
Manager, Vehicle Leasing and Rental	187.167-162
Manager, Warehouse	184.167-114
Purser	197.167-014
Superintendent, Laundry	187.167-194
Superintendent, Maintenance of Equipment	184.167-178
Superintendent, Terminal	184.167-214
Yard Manager	184.167-278

CONTRACTS AND CLAIMS

Contracts and claims include negotiating contracts and investigating claims for companies and people. Workers who negotiate contracts set up legally binding agreements between buyers and sellers of services, materials, or products. Workers who investigate claims gather information to determine the validity of claims. Claims involve such things as property damage or personal injury. Insurance companies, booking agencies, industries, businesses, and government agencies employ workers in this group.

WORK PERFORMED

What would you do as a worker in this group?

You would bargain with others to agree upon a contract or a settlement of a claim. You would perform one or more of the following tasks.

- Arrange contracts with night clubs and theaters for musicians or other entertainers.
- Bargain with property owners to settle damage claims resulting from drilling for oil.
- Contact publishers to arrange for publication of writings of an author.
- Meet with public officials to arrange leases for the right-of-way of utility lines.
- Work for an insurance company to settle claims.
- Prepare and submit bids for construction projects.

Artist's managers protect the interests of their clients as they arrange contracts for them.

CONTRACTS AND CLAIMS WTG 11.12

Illinois Agricultural Association

Car insurance companies employ claim examiners to estimate damage and settle claims.

Lease buyers negotiate prices and contracts with landowners.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this kind of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Know laws to prepare contracts and settle claims.
- Compute costs and prepare cost estimates.
- Read detailed technical information.
- Keep accurate records.
- Persuade others to agree to terms.
- Speak clearly and convincingly.

11.12 WTC CONTRACTS AND CLAIMS

CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you been on a debate team? Can you persuade others to accept your opinions?
- Have you filed a claim against an insurance company? Did you fill out an accident report? Do you like detailed work like this?
- Have you read a lease or formal contract? Did you understand the details?

PREPARATION

How can you prepare for and enter this kind of work?

Many jobs in this group require work experience in a field such as insurance or real estate. The type and amount of education required vary among jobs. A college degree in business or management is usually needed. Courses in real estate, business law, or insurance are helpful.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Some jobs in this group require the worker to travel. Pay may be based on salary, commission, or a combination of both. Workers usually need to pass a civil service test for jobs in government agencies.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

2. Activities involving business contact.
5. Activities resulting in recognition or appreciation from others.
6. Activities involving the communication of ideas and information.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

1. Performing duties which change frequently.
3. Planning and directing an entire activity.
4. Dealing with people.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Coordinating
PEOPLE	☐	☐	■	– Negotiating
THINGS	■	☐	☐	– Handling

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

S Sedentary work.
L Light work.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	**Levels** Low 5	4	to 3	2	High 1
G – General				2	
V – Verbal				2	
N – Numerical			3		
Q – Clerical Perception			3		

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 5.

Workers apply logical thinking to define problems, collect facts, and make sound decisions concerning contract negotiations and claims investigation. They interpret a variety of instructions presented in mathematical or diagram form. These workers deal with abstract and concrete variables such as damage claims, contractual clauses, and leases.

11.12 WTC CONTRACTS AND CLAIMS

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.

A – To advance to most occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

C – Four-year college degree in business management, real estate, insurance, or business law.

T – One- or two-year technical school programs in insurance, real estate, or business law.

V – Courses in distributive education.

NFT – Some occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 2 years up to and including 10 years (SVP 7, 8).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for entrance to post high school formal programs.
- Language Skills, Basic Math Skills.

OCCUPATIONS IN CONTRACTS AND CLAIMS

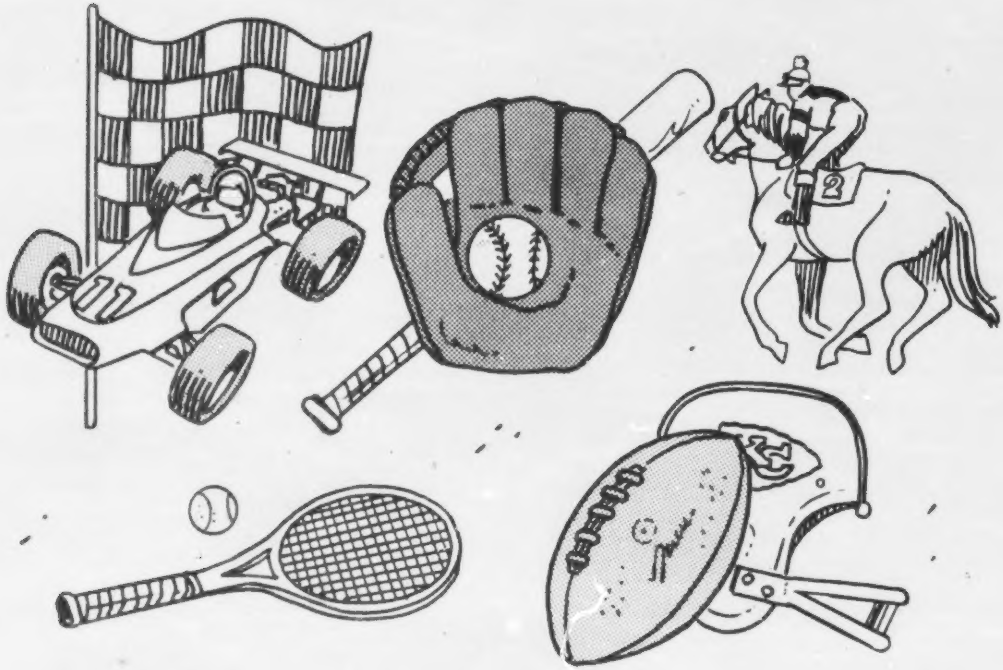
Appraiser, Automobile Damage	**241.267-014**
Artist's Manager	**191.117-010**
Booking Manager	**191.117-014**
Claim Adjuster	**241.217-010**
Claim Examiner	**241.267-018**
Contract Administrator	**162.117-014**
Contract Specialist	**162.117-018**
Contractor	**182.167-010**
Escrow Officer	**119.367-010**
Lease Buyer	**191.117-030**
Literary Agent	**191.117-034**
Manager, Customer Service	**168.167-058**
Property-Utilization Officer	**188.117-122**
Real-Estate Agent	**186.117-058**
Rental Manager, Public Events Facilities	**186.117-062**
Right-of-Way Agent	**191.117-046**
Right-of-Way Supervisor	**191.117-050**

12.

physical performing

This is an interest in physical activities performed before an audience.

You can satisfy this interest through jobs in athletics, sports, and the performance of physical feats. You may enjoy sports. Perhaps a job as a professional player or official would satisfy you. You may prefer to develop and perform special acts such as acrobatics or wire walking.



12.01 WTC

SPORTS

Sports includes competing in professional athletic or sporting events, coaching players and officiating games. Jobs in this group are found in all types of sports. These sports include horse racing, hockey, football, baseball, basketball, golf, and track.

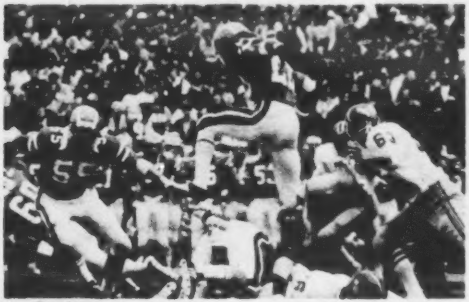
WORK PERFORMED

What would you do as a worker in this group?

You would officiate, coach, or compete in professional sporting events. You would perform one or more of the following tasks.

- Coach a baseball team.
- Start, time, or certify winners in a major auto race.
- Inspect equipment to see if rules are being followed before an event.
- Practice and play on a football team.
- Stop a game and penalize players for breaking a rule.
- Ride horses in several races each day.

What would you prefer to do?


A. Perform

B. Coach

Referee Magazine

C. Officiate

Union Camp

Great athletes work under the mental pressure of maintaining their reputation.

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this type of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Know all the rules of the game or sport.
- Make official decisions quickly and firmly.
- Work under the physical and mental pressure of competition.
- Judge distance, speed, and movement of objects or people.
- Coach players and teach the techniques of a sport.
- Stay on a strict training schedule.
- Work under risk of physical injury.

12.01 WTG SPORTS

CLUES

Do you have or can you develop these skills, abilities, and interests? Your answers to the following questions will help you decide.

- Have you coached a team or a person in athletic events? Were your efforts effective?
- Have you competed in sports? Do you know the rules of any sport well enough to be a judge or umpire?
- Have you been an umpire or referee in intramural games, physical education classes, or sandlot sports? Can you make decisions quickly and firmly?
- Have you competed against others in an athletic event? Do you remain calm and alert in the heat of competition?

If you enjoy participating in school sporting events, you may want to consider a career in sports.

PREPARATION

How can you prepare for and enter this type of work?

Coaches in professional sports often start as high school or college coaches. Race officials do not usually have a formal method of entry. Most people obtaining these jobs have already been involved in racing in some way. Some jobs, such as clocker and horse race starter, require at least six months in a similar job for experience. Then on-the-job training is required for the desired position.

To be hired by professional baseball leagues, umpires must graduate from one of several recognized umpire training schools. Umpires obtain their first jobs in the minor leagues. Then they attempt to earn promotions to the major leagues.

Athletes in major sports often receive training and experience as members of high school or college teams. The athletes are then recruited by professional clubs. Their training continues as long as they work in their jobs. Racing professionals must learn their jobs through experience over several years.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Audiences and players may not agree with the officials' decisions. Officials must be able to stand by their decisions. They must impose corrective measures and may remove a player or coach from the game.

Professional athletes must maintain or improve their skills to compete against others. The physical demands of most sports may limit the number of years a worker remains a professional.

Professional coaches are always under pressure to have winning teams. Their futures usually depend upon their win/loss records.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

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WORK ACTIVITIES

Workers generally prefer the following types of work activities.

5. Activities resulting in recognition or appreciation from others.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

4. Dealing with people.
5. Influencing people's opinions, attitudes, and judgments.
6. Working under pressure.
7. Making decisions using personal judgment.
8. Making decisions using standards that can be measured or checked.

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	☐	■	– Analyzing
PEOPLE	■	☐	☐	– Speaking/Signaling
THINGS	☐	■	☐	– Driving/Operating

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
M Medium work.
H Heavy work.
2. Climbing and/or balancing.
3. Stooping, kneeling, crouching, and/or crawling.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

0 Outside.
B Both: inside and outside.
6. Hazards.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	**Levels**				
	Low		to		High
	5	4	3	2	1
G – General			3		
V – Verbal		4 – 3			
S – Spatial		4 – 3			
P – Form Perception		4 – 3			
Q – Clerical Perception		4 – 3			
K – Motor Coordination				2	
E – Eye-Hand-Foot Coordination					1
F – Finger Dexterity				2	
M – Manual Dexterity				2	

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level 4-5.

Workers apply special knowledge and logical thinking to enforce the rules and regulations of a sport or game. They interpret a variety of instructions presented in written or diagram form. During sporting events, these workers make decisions based on abstract and concrete variables such as the players' positions, readiness of racing animals, the location of balls or pucks, and fair play.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter some occupations workers only need the required competencies and credentials.

A – To advance to some occupations workers not only need the required competencies and credentials but also related work experience.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

C – Four-year college degree in physical education.

NFT – Most occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 6 months up to and including 10 years (SVP 5, 6, 7, 8).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.
- Courses required for entrance to post high school formal programs.

OCCUPATIONS IN SPORTS

Automobile Racer	153.243-010
Guide, Hunting and Fishing	353.161-010
Head Coach	153.117-010
Instructor, Sports	153.227-018
Jockey	153.244-010
Motorcycle Racer	153.243-014
Professional Athlete	153.341-010
Umpire	153.267-018

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12.02 WTG

physical feats

Physical feats, as used here, are acts of special physical strength or skill which entertain people. Workers in this group may perform alone. Circuses, carnivals, and theaters hire these workers. Booking agents often arrange performances and special events.

WORK PERFORMED

What would you do as a worker in this group?

You would prepare and present special feats of physical skill to entertain audiences. You would perform one or more of the following tasks.

- Demonstrate gymnastic skill on a high wire or trapeze.
- Compete in events at rodeos.
- Juggle and balance things such as balls, knives, or plates.
- Swim in a water ballet.

To maintain and improve your physical skill, you would have to stay on a strict training schedule.

Wyoming Travel Commission

Would you enjoy working under the pressure of physical hazards and risks?

WORKER REQUIREMENTS

What skills, abilities, and interests would help you succeed in this type of work?

To do this type of work, you should have the ability to learn, the skill to perform, and the interest in doing most of the following items. Not all items are important to every job.

- Move eyes, hands, body, and feet together skillfully.
- Perform in front of an audience.
- Stay on a strict training schedule.
- Work under the pressure of physical hazards and risks.
- Judge distance, speed, and movement of objects or people.
- Develop a physical skill for a specialty act such as juggling or acrobatics.

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CLUES

Do you have or can you develop these skills, abilities, and interests?

Your answers to the following questions will help you decide.

- Have you taken part in any sport or game involving rapid movement and high risks? Can you overcome the natural fear of injury enough to concentrate on the event?
- Have you had lessons in riding a horse? Have you competed in a horse race, horse show, or rodeo?
- Have you had a hobby or specialty act such as juggling, acrobatics, or wire walking? Do you perform well before an audience?

PREPARATION

How can you prepare for and enter this type of work?

The usual method of training for these jobs is by working in a related environment. Workers learn by observing others and practicing. A common method of training is to work with and learn from a successful performer. Training periods usually last from two to ten years.

Circuses and other companies hire performers of some specialty acts and help them improve their acts. Some performers own their own equipment and contract for appearances.

New York Times

The training needed to enter horse race competitions or to be a cheerleader can help you develop physical skills.

OTHER CONSIDERATIONS

What else should you know about these jobs?

Workers in this group must maintain or improve their skills for their own safety.

Physical requirements usually limit the number of productive years of some workers.

Workers usually travel from place to place to do their work. They might go to the same places on a regular schedule.

QUALIFICATIONS PROFILE

The following information is a summary of the traits and qualifications related to the workers in this group. As you read it, try to relate your own interests, abilities, aptitudes, and preferences to these worker traits.

WORK ACTIVITIES

Workers generally prefer the following types of work activities.

5. Activities resulting in recognition or appreciation from others.
9. Activities involving processes, methods, or machines.

WORK SITUATIONS

Workers are willing to adjust to the following types of work situations.

6. Working under pressure.
7. Making decisions using personal judgment.

12.02 WTG physical FEATS

WORKER FUNCTIONS

These may be the most difficult functions workers perform when dealing with data, people, and things.

	Low	Avg.	High	
DATA	☐	■	☐	– Compiling
PEOPLE	☐	■	☐	– Diverting
THINGS	☐	■	☐	– Manipulating

PHYSICAL DEMANDS

Workers must be able to perform the following types of physical activities.

L Light work.
M Medium work.
H Heavy work.
2. Climbing and/or balancing.
3. Stooping, kneeling, crouching, and/or crawling.
4. Reaching, handling, fingering, and/or feeling.
5. Talking and/or hearing.
6. Seeing.

WORKING CONDITIONS

Workers need to adjust to the following physical surroundings and working conditions.

I Inside.
B Both: inside and outside.
6. Hazards.

APTITUDES

These levels of aptitudes (ability to learn) are related to the average successful performance of workers in this group. Levels are rated on a 5 to 1 scale.

Aptitudes	Levels Low 5	4	to 3	2	High 1
G – General			3		
S – Spatial				2	
F – Form Perception			3		
K – Motor Coordination			3 – 2		
F – Finger Dexterity			3 – 2		
M – Manual Dexterity			3 – 2		
E – Eye-Hand-Foot Coordination				2 – 1	

GENERAL EDUCATIONAL DEVELOPMENT (GED)

GED is the general level of learning and reasoning acquired through schools, experience, or self-directed study. There are six GED difficulty levels, ranging from the most complex (6) to the simplest (1). The following statement explains why these workers need the GED level **3-4.**

Workers apply special knowledge and logical thinking to perform an unusual physical feat for the purpose of entertaining others. They interpret a variety of instructions that are written, spoken, or in diagram form. These workers solve practical problems based on concrete factors such as physical condition and particular skills.

PREPARATION AND TRAINING

Workers usually gain the competencies and credentials they need to enter or advance to occupations in this group through formal education and training programs or through work experience.

Entry and Advancement Information

E – To enter most occupations workers only need the required competencies and credentials.

Related Formal Training Programs

Workers usually gain the competencies and credentials they need to enter occupations in this group in the following ways.

NFT – Most occupations in this group have no related formal education or training programs.

Training Time

Occupations in this group may require from over 6 months up to and including 10 years (SVP 5, 6, 7, 8).

Related High School Level Courses

The following high school courses are helpful in preparing for the occupations in this group.

- Courses required for completion of high school.

OCCUPATIONS IN PHYSICAL FEATS

Equestrian	**159.344-010**
Instructor, Physical	**153.227-014**
Juggler	**159.341-010**
Rodeo Performer	**159.344-014**

APPENDIX A

WORK ACTIVITIES

Everyone has preferences for certain types of activities. There are thousands of different occupations involving a wide variety of activities. Work activities in these occupations can be grouped into ten broad types.

These ten types of activities are related to the 66 Worker Trait Groups. You can use these types of work activities for career exploration in two ways:

a. You can select Worker Trait Groups to explore by knowing the types of activities you prefer.

b. You can identify work activities you would do as a worker in the group.

Types of Work Activities

1. **Activities dealing with things and objects.**

   Workers do physical work with materials and products. They often use instruments, tools, machines, or vehicles. They may lift, pull, and push. They may do more complex tasks such as adjusting and controlling things. Also, workers may use knowledge and reasoning skills to make judgments and decisions.

2. **Activities involving business contact.**

   Workers deal with others in various situations. They set up business contacts to sell, buy, talk, listen, promote, and bargain. To follow through, workers gather, exchange, or present ideas and facts about the products or services.

3. **Activities of a routine, definite, organized nature.**

   Workers usually repeat the same task many times. These tasks can often be done in a short time. Workers are usually organized to get the most work done in the least time. In general, assignments and methods are set up in advance. The worker seldom makes decisions about the work.

4. **Activities involving direct personal contact to help or instruct others.**

   Workers help to maintain or improve the physical, mental, emotional, or spiritual well-being of others. Workers need to speak and listen well. They may communicate simple ideas. They may also deal with complex principles of human growth to teach, train, or help others. Some workers may care for or train animals.

5. **Activities resulting in recognition or appreciation from others.**

   Workers may lead, plan, control, or manage the work of others. Some workers may be involved in acting, sports, art, or music. As a result, they gain prestige, recognition, or appreciation from others. In most cases, workers are involved at a high level with data and people.

6. **Activities involving the communication of ideas and information.**

   Workers present ideas and information to others through writing, acting, music, or designing. They may inform others through radio or television. Workers may also be in direct contact with the people they inform.

7. **Activities of a scientific and technical nature.**

   Workers may conduct research and analysis, evaluate, explain, and record scientific information. They may use scientific or technical methods, instruments, and equipment in their work.

8. **Activities involving creative thinking.**

   Workers use complex mental skills to create new knowledge or new ways to apply what is already known. They may solve difficult problems or design projects and methods. Workers may use new ways to express ideas, feelings, and moods. They may also use imagination to create ideas and objects.

9. **Activities involving processes, methods, or machines.**

   Workers may plan, schedule, process, control, direct, and evaluate data and things. There may be contact with people, but dealing with people is not important to the work.

10. **Activities involving working on or producing things.**

    Workers use physical skills to work on or make products. Often tools, machines, or measuring devices are used to make or change a product. Workers may build, repair, alter, or restore products.

APPENDIX B

WORK SITUATIONS

The work involved in any occupation takes place under certain conditions. These conditions or situations place demands on workers. The workers must adapt to the demands of the work situation if they are to perform the work well. There are ten types of work situations. These types have been related to the 66 Worker Trait Groups to help you in career exploration.

As you explore a Worker Trait Group, try to understand how you feel about each of the work situations involved. You are more likely to find satisfying work, if you know which situations you like and to which you can most easily adapt.

Types of Work Situations

1. **Performing duties which change frequently.**

   Workers perfom a variety of duties, often changing from one task to another. The variety of duties requires workers to use different skills, knowledge, and abilities. They may need to use different methods or materials. They may also have to change work locations. In changing tasks, workers must be efficient and remain calm.

2. **Performing routine tasks.**

   Workers do the same tasks over and over. They may not change the tasks or the order in which they do them. Work assignments are of short duration and follow a required method or sequence. Very little judgment is required.

3. **Planning and directing an entire activity.**

   Workers plan, direct, or control an entire activity, project, or program. As leaders, they coordinate, supervise, and are responsible for the work of others. They make decisions and keep up-to-date on new information about their work.

4. **Dealing with people.**

   Workers deal directly with other people. They must interact with people at a higher level than giving or taking instructions. Workers must be pleasant and helpful in their contacts with people.

5. **Influencing people's opinions, attitudes, and judgments.**

   Workers influence people by changing their thinking and behavior. Workers must be able to understand people and communicate with them. They influence how people feel about a product, a service, or other people. This influence is achieved by providing new information or ideas in a direct or indirect way.

6. **Working under pressure.**

   Workers deal with situations involving potential danger and risk. Workers must maintain self-control and take decisive action in unexpected or critical situations. They may also be involved with tasks where speed and close attention to detail create pressure.

7. **Making decisions using personal judgment.**

   Workers use personal judgment and the five physical senses to make decisions. No standard or right answers exist upon which to base the decisions. They are based upon the training, experience, or aesthetic values of the workers.

8. **Making decisions using standards that can be measured or checked.**

   Workers make decisions based upon information or standards that can be measured or checked. Facts and set procedures are used rather than personal judgment.

9. **Interpreting and expressing feelings, ideas, or facts.**

   Workers use creative thinking to interpret and express feelings, ideas, or facts. Some workers focus on the process they use to communicate, such as speaking, singing, or acting. Others communicate through products, such as photographs, designs, songs, or paintings.

10. **Working within precise limits or standards of accuracy.**

    Workers must pay strict attention to details. Tasks must be completed with accuracy within exact standards or time limits. The quality of the product or service is directly related to the performance of the workers.

APPENDIX C

WORKER FUNCTIONS: DATA - PEOPLE - THINGS

All activities may be described in relation to data, people, and things. Although every activity involves each of these elements, differences occur in the kind or level of involvement. There may be a difference in the amount of contact with an element. For example, teachers spend a large part of their time working with people, but plumbers spend less time working with people and more time working with things. The amount of difficulty in dealing with an element may also vary. For example, a tollbooth operator has a large amount of contact with people, but at a simple level. A minister, however, may work with fewer people, but works with them at a more difficult level.

The U. S. Department of Labor has classified occupations based on their differences in the difficulty of involvement with data, people, and things. For example, it is easier to copy a math problem (a simple **data** activity) than to work the problem (a more difficult **data** activity). It is easier to follow instructions to help perform a task (a simple **people** activity) than to give these instructions (a more difficult **people** activity). It is easier to place dishes in a dishwasher (a simple **things** activity) than to repair the dishwasher (a more difficult **things** activity).

A worker who can deal with difficult **data** activities, for example, can probably also deal with **less** difficult **data** activities. Therefore, only the most difficult level at which the worker would have to perform needs to be identified. Successful performance at all lower levels can be taken for granted.

Each occupation has been rated according to the worker's **most difficult** involvement with each of the three elements — **data, people,** and **things.**

The various kinds of involvement with data, people, and things have been identified and rated from high to low according to the level of difficulty.

DATA

Definition

Data include information, knowledge, and ideas about known facts, people, animals, or objects such as materials, machines, and products. Data may be gathered, observed, investigated, interpreted, thought about, or imagined. Data cannot be touched or handled. However, data can be expressed in numbers, spoken and written words, symbols, or in the form of thoughts and ideas.

Levels of Involvement with Data

Levels are rated on a **0** to **6** scale : most difficult (0) to simplest (6).

0 **Synthesizing:** Discovering facts and/or developing logical conclusions or interpretations of ideas as a result of examining and evaluating information.

1 **Coordinating:** Determining the time, place, and order of operations or actions to be performed as a result of analyzing data. Carrying out and/or reporting on actions decided upon.

2 **Analyzing:** Examining and determining the value of data, which sometimes results in a need to choose the best course of action to be taken.

3 **Compiling:** Gathering information about data, people, or things and putting it together in proper order. Frequently involves reporting and/or carrying out activities indicated by the information.

4 **Computing:** Performing arithmetic operations, reporting results, or carrying out activities as indicated by the results.

5 **Copying:** Transcribing data (rewriting from another copy or from shorthand notes), or posting data (entering it in ledgers or account books).

6 **Comparing:** Judging data, people, or things according to what can be readily observed such as actions, appearances, and differences from the usual.

PEOPLE

Definition

People, as used here, also include animals when they are given care and consideration similar to that given human beings.

Levels of Involvement with People

Levels are rated on a **0** to **8** scale : most difficult (0) to simplest (8).

0 **Mentoring:** Dealing with people in terms of their total personality to advise or counsel them on problems. This is accomplished by using principles of law, science, medicine, or religion.

1 **Negotiating:** Exchanging ideas, information, and opinions with others to make policies, plan programs, and/or arrive jointly at decisions, conclusions, or solutions.

2 **Instructing:** Teaching subject matter to others or training others (including animals) through explaining, demonstrating, or supervised practice using knowledge gained through specialized training.

3 **Supervising:** Determining or explaining work procedures for a group of workers and assigning tasks to them. Encouraging workers to get along well with each other and to do their best work.

4 **Diverting:** Amusing others.

5 **Persuading:** Influencing others in favor of a product, service, or opinion.

6 **Speaking - Signaling:** Talking with and/or signaling people to give or exchange information. Assigning tasks or giving directions to helpers or assistants.

7 **Serving:** Attending to the requests or needs of people or animals. Carrying out the wishes of people, either expressed or understood without being expressed. Immediate response is involved.

8 **Taking Instructions:** Carrying out work instructions or orders of supervisor. No immediate response is involved.

THINGS

Definition

Things, as used here, are lifeless objects as distinguished from people or animals, such as substances or materials, machines, tools, equipment, or products. They have a shape, form, weight, and texture and can be touched or handled.

Levels of Involvement with Things

Levels are rated on a **0** to **7** scale: most difficult (0) to simplest (7).

0 **Setting Up:** Adjusting machines or equipment by replacing or altering tools, jigs, fixtures, and attachments. Adjusting is done to prepare machines or equipment to perform their functions, change their performance, or restore their proper functioning if they break down. Workers set up machines for other workers or set up and personally operate a variety of machines.

1 **Precision Working:** Using parts of the body and tools to work, guide, or place objects or materials in such a way that rigid standards for the product or process will be met. The precision worker uses considerable judgment to select the right tools, objects, or materials and to correctly apply the tool to the task.

2 **Operating - Controlling:** Starting, stopping, controlling, and adjusting the progress of machines or equipment designed to manufacture and/or process objects or materials. Operating involves setting up and adjusting the machine or the material as the work progresses. Controlling equipment involves watching gages and dials and turning valves and other devices to control temperature, pressure, flow of liquids, speed of pumps, and reactions of materials. Frequent adjustments of the equipment may be needed.

3 **Driving - Operating:** Starting, stopping, and controlling the actions of machines or equipment which must be steered or guided to manufacture, process, and/or move things or people. It involves watching gages and dials; estimating distances; determining speed and direction of other objects; turning cranks and wheels; pushing clutches or brakes; and pushing or pulling gear lifts or levers. Machines such as cranes, conveyor systems, tractors, paving machines, hoisting machines, and equipment for loading large industrial furnaces are included. Machines powered by hand such as handtrucks and dollies, or machines such as electric wheelbarrows or handtrucks are not included.

4 **Manipulating:** Using tools, special devices, or parts of the body to work, move, guide, or place objects or materials. Workers use some judgment to maintain the needed degree of accuracy and to select the proper tool, object, or materials. However, such judgments are usually not difficult to make.

5 **Tending:** Starting, stopping, and watching the operation of machines and equipment. It involves adjusting materials or controls of machines. Activities include changing guides, adjusting timers and temperature gages, turning valves to allow flow of materials, and flipping switches in response to lights. Little judgment is involved in making these adjustments.

6 **Feeding - Offbearing:** Throwing, dumping, putting, or feeding materials into or removing them from machines or equipment. These machines or equipment may be automatic or may be tended or operated by other workers.

7 **Handling:** Using parts of the body, handtools, and/or special devices to work, move, or carry objects or materials. Little or no judgment is involved in meeting standards or in selecting the proper tool, object, or material.

The occupations listed in the **Dictionary of Occupational Titles** (DOT) have a nine-digit code number. The **middle** three digits show how each occupation is related to **Data, People,** and **Things.** These numbers always indicate the **highest** level of involvement with Data, People, and Things. Thus, if a code number shows the level of involvement with Data as 4, it means that activities at lower levels (5 and 6) may also be included in the occupation. The following table shows how the levels of involvement with **Data, People,** and **Things** are represented in the DOT nine-digit code.

DATA — PEOPLE — THINGS STRUCTURE

	DATA (4th digit of DOT code)	PEOPLE (5th digit of DOT code)	THINGS (6th digit of DOT code)
Difficult High ↑	**0 Synthesizing** **1 Coordinating** **2 Analyzing**	**0 Mentoring** **1 Negotiating**	**0 Setting-Up** **1 Precision Working**
Average	3 Compiling 4 Computing	2 Instructing 3 Supervising 4 Diverting 5 Persuading	2 Operating - Controlling 3 Driving - Operating 4 Manipulating
↓ **Simple** Low	**5 Copying** **6 Comparing**	**6 Speaking-Signaling** **7 Serving** **8 Taking Instructions - Helping**	**5 Tending** **6 Feeding - Offbearing** **7 Handling**

APPENDIX D

PHYSICAL DEMANDS

Physical demands, as used here, are the physical requirements of an occupation. They are also the physical capacities a worker must have to perform the major tasks of an occupation. For example, **"seeing"** (becoming aware of something through the sense of sight) is a physical demand required by many occupations. It is also a physical capacity (the sense of sight) possessed by most people. A worker must have physical capacities at least in an amount equal to the physical demands required by the occupation.

Types of Physical Demands

Type No. 1. Lifting, Carrying, Pushing, and/or Pulling.

These are the most important "strength" activities. In general, a person who is able to do one can do them all. They are defined as follows:

(1) **Lifting.** Raising or lowering an object from one level to another. This activity includes upward pulling.

(2) **Carrying.** Moving an object from one place to another, usually holding it in the hands or arms or on the shoulder.

(3) **Pushing.** Using force upon an object to move it away from the force. This activity includes slapping, striking, kicking, and treadle actions.

(4) **Pulling.** Using force upon an object to move it toward the force. This activity includes jerking actions.

Type No. 1 may be divided into the following levels of work requirements.

S — Sedentary Work

Sedentary work usually involves sitting but may also involve walking and standing. Objects lifted and/or carried, such as record and account books or small tools, may weigh no more than 10 pounds (4.5 kg).

L — Light Work

Light work means lifting objects weighing no more than 20 pounds (9 kg). It involves frequent lifting and carrying objects weighing up to 10 pounds (4.5 kg). Jobs may be considered light work even if they require a lot of walking or standing. These jobs may involve sitting most of the time while using arms and legs for pushing and pulling.

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M — Medium Work

Medium work means lifting objects weighing no more than 50 pounds (22.5 kg). It involves frequent lifting and carrying of objects weighing no more than 25 pounds (11.4 kg).

H — Heavy Work

Heavy work means lifting objects weighing no more than 100 pounds (45 kg). It involves frequent lifting and carrying of objects weighing no more than 50 pounds (22.5 kg).

V — Very Heavy Work

Very heavy work means lifting objects weighing more than 100 pounds (45 kg). It involves frequent lifting and carrying of objects weighing 50 pounds (22.5 kg) or more.

Type No. 2. Climbing and/or balancing.

(1) **Climbing.** Going up or down ladders, stairs, scaffolding, ramps, poles, ropes, and the like using the feet and legs and/or arms.

(2) **Balancing.** Maintaining control of the body to keep from falling when walking, standing, crouching, running, or performing gymnastic feats. This activity is done on narrow, slippery, or moving surfaces.

Type No. 3. Stooping, Kneeling, Crouching, and/or Crawling.

(1) **Stooping.** Curving the body downward and forward by bending the spine at the waist.

(2) **Kneeling.** Getting down on the knee or knees.

(3) **Crouching.** Curving the body downward and forward by bending the legs and spine.

(4) **Crawling.** Moving about on the hands and knees or hands and feet.

Type No. 4. Reaching, Handling, Fingering, and/or Feeling.

(1) **Reaching.** Stretching out the hands and arms in any direction.

(2) **Handling.** Taking hold of an object, turning it, or otherwise working with the hand or hands. It does not include fingering.

(3) **Fingering.** Picking, pinching, or otherwise working mostly with the fingers rather than with the whole hand as in handling.

(4) **Feeling.** Becoming aware of the size, shape, temperature, or texture of objects and materials by using the hands and fingertips.

Type No. 5. Talking and/or Hearing.

(1) **Talking.** Expressing or exchanging ideas by means of the spoken word.

(2) **Hearing.** Perceiving sounds and/or information by means of the ear.

Type No. 6. Seeing.

Becoming aware of the shape, size, distance, motion, or color of objects by using the eyes. The major functions of the eyes are defined as follows:

(1) **Acuity.** Far — having a clear vision at 20 feet or more. Near — having a clear vision at 20 inches or less.

(2) **Depth perception.** Recognizing the length, width, or thickness of objects. Judging distance and space relationship so as to see objects where and as they actually are.

(3) **Field of vision.** Seeing the surrounding area, up and down and right and left, while the eyes are fixed on a given point.

(4) **Accommodation.** Adjusting the eye's lens to bring an object into sharp focus. This is especially important when doing close work at varying distances from the eye.

(5) **Color vision.** Seeing likenesses and differences among colors.

APPENDIX E

WORKING CONDITIONS

Working conditions, as used here, are the physical surroundings of a worker in a job. Working conditions make specific demands upon the worker's physical capacities. The Department of Labor has identified seven different types of working conditions.

Types of Working Conditions

Type No. 1. Inside, Outside, or Both.

I — Inside. Protection from weather conditions but not always from temperature changes. Workers spend about 75 percent or more of their time inside.

O — Outside. No effective protection from weather conditions. Workers spend about 75 percent or more of their time outside.

B — Both. Inside and outside. Workers spend about 50 percent of their time inside and 50 percent of their time outside.

Type No. 2. Extremes of Cold Plus Temperature Changes.

(1) **Extremes of cold.** Temperatures low enough to cause noticeable bodily discomfort unless the worker is provided with exceptional protection.

(2) **Temperature changes.** Variations in temperature which are marked and abrupt, causing noticeable bodily reactions.

Type No. 3. Extremes of Heat Plus Temperature Changes.

(1) **Extremes of heat.** Temperature high enough to cause noticeable bodily discomfort unless the worker is provided with exceptional protection.

(2) **Temperature changes.** Variations in temperature which are marked and abrupt, causing noticeable bodily reactions.

Type No. 4. Wet and Humid.

(1) **Wet.** Contact with water or other liquids.

(2) **Humid.** Moisture content of the atmosphere high enough to cause noticeable bodily discomfort.

Type No. 5. Noise and Vibrations.

Enough noise, either constant or at intervals, to cause noticeable distraction or possible injury to the sense of hearing. Enough vibrations to cause bodily harm if endured day after day. These vibrations produce movement or strain on the body or its extremities from repeated motion or shock.

Type No. 6. Hazards.

Situations in which the worker is exposed to the certain risk of bodily injury.

Type No. 7. Fumes, Odors, Toxic Conditions, Dust, and Poor Ventilation.

(1) **Fumes:** Smoke or vapors, usually strong smelling, thrown off as the result of combustion or chemical reaction.

(2) **Odors:** Foul smells, either toxic or nontoxic.

(3) **Toxic conditions:** Exposure to poisoning dust, fumes, gases, vapors, mists, or liquids causing general or local disabling conditions. These conditions happen as a result of breathing the substance or its action on the skin.

(4) **Dust:** Air filled with small particles of any kind. The particles may include textile dust, flour, wood, leather, feathers, silica, asbestos, etc. This condition makes the place of work unpleasant or the source of diseases.

(5) **Poor Ventilation:** Not enough movement of air, causing a feeling of suffocation or exposure to drafts.

APPENDIX F

APTITUDES

Aptitude is the quickness or ease with which you can learn to do something. There are different types of aptitudes. Some aptitudes can help you understand a novel or solve math problems. Others can help you do very fine work with your hands or fingers. Some other aptitudes can help you do tasks requiring fast and accurate body movements. Still other aptitudes can help you see differences in size or shape.

People differ from one another in aptitude just as they differ in looks, height, weight, or interests. You may be able to learn some things quite easily. Other things may be more or extremely difficult for you to learn. For example, only a few people become basketball stars, get the lead in a class play, or an "A" in physics. Knowing as much as possible about your aptitudes can help you in career exploration and planning.

The U. S. Department of Labor job analysts have defined eleven different aptitudes. These aptitudes have been related to the Worker Trait Groups. The aptitudes significant to job performance in each Worker Trait Group have also been identified. The following statements describe the eleven aptitudes.

G — General. Understanding instructions, facts, and underlying reasoning. Being able to reason and make judgments. Closely related to school achievement.

V — Verbal. Understanding meanings of words and ideas. Using them to present information or ideas clearly.

N — Numerical. Doing arithmetic operations quickly and correctly.

S — Spatial. Looking at flat drawings or pictures of objects. Forming mental images of them in three dimensions — height, width, and depth.

P — Form Perception. Observing detail in objects or drawings. Noticing differences in shapes or shadings.

Q — Clerical Perception. Observing details and recognizing errors in numbers, spelling, and punctuation in written materials, charts, and tables. Avoiding errors when copying materials.

K — Motor Coordination. Moving the eyes and hands or fingers together to perform a task rapidly and correctly.

F — Finger Dexterity. Moving the fingers to work with small objects rapidly and correctly.

M — Manual Dexterity. Moving the hands with ease and skill. Working with the hands in placing and turning motions.

E — Eye-Hand-Foot Coordination. Moving the hands and feet together in response to visual signals or observations.

C — Color Discrimination. Seeing likenesses or differences in colors or shades. Identifying or matching certain colors. Selecting colors which go well together.

Aptitude Levels

The different levels of an aptitude a person could have have been identified for each Worker Trait Group. The following statements describe the different levels of aptitudes in terms of adult workers. You can use these statements to help you estimate your own aptitude levels.

Level 1 — The **top ten percent** of the population — a very **high degree** of aptitude.

Level 2 — The **highest third** of the population, **not** including the highest ten percent — an above average or **high** degree of the aptitude.

Level 3 — The **middle third** of the population — an **average** or medium degree of the aptitude.

Level 4 — The **lowest third** of the population, not including the lowest ten percent — a below average or **low** degree of the aptitude.

Level 5 — The **lowest ten percent** of the population — a **very low degree** of the aptitude.

APPENDIX G

GENERAL EDUCATIONAL DEVELOPMENT

General Educational Development (GED) refers to education which helps increase a worker's reasoning skills and ability to follow instructions. It is education of a general rather than specific nature. This education may be acquired in elementary school, high school, college, or from experience or self-directed study.

Variables, as used here, are factors which help determine the difficulty of job performance. The words **"abstract variable,"** as used in the following GED levels, refer to ideas, concepts, formulas, and theories. The words **"concrete variable,"** as used in the following GED levels, refer to what can be seen, touched, handled, or manipulated.

GED Levels

Reasoning development is defined in terms of six levels of difficulty ranging from the most difficult (level 6) to the simplest (level 1).

6. **Apply logical thinking and scientific knowledge to solve a wide range of very complex problems. Use and understand such nonverbal symbols as formulas, scientific equations, or graphs. Deal with such abstract variables as music theory or chemical reactions. Deal with such concrete variables as surgical instruments or equipment used to monitor space exploration rockets.**
5. Apply logical thinking and scientific knowledge to define problems, collect data, establish facts, and reach valid conclusions. Understand and follow a wide variety of technical instructions presented in mathematical or diagram form. Deal with such abstract variables as repair techniques. Deal with such concrete variables as testing equipment.
4. **Apply principles of rational systems such as bookkeeping, navigation, or farm management. Understand and follow instructions presented in written, oral, diagram, or schedule form. Deal with fairly standardized situations involving concrete variables such as office machines, farm or construction equipment, or navigational aids.**
3. Use common sense to carry out instructions presented in written, oral, or diagram form. Deal with standardized situations involving concrete variables such as hand tools or cooking equipment.

2. **Use common sense to carry out detailed but fairly simple written or oral instructions. Deal with standardized situations involving a few concrete variables such as making change or operating machine levers or switches.**
1. Use common sense to carry out one- or two-step instructions. Deal with standardized situations involving few or no variables to do such tasks as carrying messages or moving materials.

APPENDIX H

PREPARATION AND TRAINING

Preparation and training are important considerations in career planning. This section of the Qualifications Profile describes the education, training, and experience workers need to enter and perform well in the occupations of the Worker Trait Group. The following types and levels of preparation and training are used to describe the requirements of each Worker Trait Group.

Entry and Advancement Information

E — Entry. The Worker Trait Group contains occupations which are **open to anyone** with the **necessary education and training.** These requirements may vary from a general education to advanced college degrees.

A — Advancement. The Worker Trait Group contains occupations which are **open only** to persons with **related work experience** as well as the **necessary education and training.** Some occupations require knowledge and skills that can be developed only through experience in a related job. Occupations involving managing and planning duties are among those in this category.

Related Formal Training Programs

The following educational programs are directed toward developing the specific knowledge and skills required by the occupations in a Worker Trait Group. These programs are usually associated with a specific institution and involve a set period of time for completion.

G — Graduate. The Worker Trait Group contains occupations which require college studies at the graduate level. A master's or doctor's degree involving one to four years of study beyond the baccalaureate degree may be required.

C — College. The Worker Trait Group contains occupations which require undergraduate studies leading to a four-year baccalaureate degree.

T — Technical. The Worker Trait Group contains occupations for which technical programs beyond the high school level may be offered. These programs usually focus on specific occupations or skills and lead to an associate degree (two years) or a certificate of completion (six months to two years). Technical schools, junior colleges, community colleges, and four-year colleges and universities offer such programs.

V — Vocational. The Worker Trait Group contains occupations for which high school level vocational programs may be offered. These programs usually focus on specific occupations or skills and involve the last two or three years of high school. Programs may be offered in the vocational department of the local high school or at a vocational high school in the community.

NFT — No Formal Training. The Worker Trait Group contains occupations which require no formal education and training other than a general education.

Training Time

The total time required to prepare for an occupation is an important consideration in career planning. Occupations require varying amounts of training time. The following statements show the range of time needed to obtain the **specific vocational preparation** (SVP) required by occupations.

SVP 1 — Short demonstration only.
SVP 2 — Anything beyond short demonstration up to and including 30 days.
SVP 3 — Over 30 days up to and including 3 months.
SVP 4 — Over 3 months up to and including 6 months.
SVP 5 — Over 6 months up to and including 1 year.
SVP 6 — Over 1 year up to and including 2 years.
SVP 7 — Over 2 years up to and including 4 years.
SVP 8 — Over 4 years up to and including 10 years.
SVP 9 — Over 10 years.

The range of training time required by most occupations in each Worker Trait Group is described under the "Training Time" heading in the Qualifications Profile.

Specific vocational training may be obtained in any of the following ways:

- **Vocational education** (such as high school business or shop training, business college, technical school, art school, military training programs, or college courses related to specific vocational preparation).
- **Apprentice training** (on-the-job training and related instruction usually lasting from one to four years).
- **On-the-job training** (serving as a learner or trainee under the instruction of a qualified worker).
- **Experience in related jobs** (working in less responsible jobs or in others which lead to the job in question).

Related High School Level Courses

The high school courses listed in this section are related to the occupations of the Worker Trait Group. Students should consider these courses as they plan their career and select high school courses and programs. They can use their interest and ability in these courses as clues to their interest in the group's occupations.

Important Courses

Subjects which develop the knowledge and skills needed for successful performance in the occupations of the Worker Trait Group are listed in this section. If post high school academic programs are alternate preparation routes for the group, a reminder is noted here to select high school courses needed to meet entrance requirements. When no specific subject can be identified as important preparation, a reminder is noted here to select courses required for completion of high school.

Helpful Courses

Subjects which develop knowledge and skills that may be helpful for successful performance in the occupations in the Worker Trait Group are listed in this section. This section is left blank when no helpful subjects can be identified.

APPENDIX I

HOW TO USE THE DICTIONARY OF OCCUPATIONAL TITLES

As you explore Worker Trait Groups, you may discover that you need more information about a specific occupation or group of occupations. You can find this type of information by using the **Dictionary of Occupational Titles** (DOT) and its **Supplement**. The DOT contains occupational descriptions organized into a structure called the Occupational Group Arrangement (OGA). The **Supplement** contains complete occupational listings for each of the Worker Trait Groups.

Using the Dictionary of Occupational Titles

To locate information about a specific occupation, use the DOT code, a nine-digit number which is shown with each occupational title listed in the Worker Trait Group Guide. In the DOT, the occupational descriptions are sequenced by the nine-digit numbers.

You may also use the DOT to identify and explore groups of occupations that are similar. You can do this using the first three digits of the DOT code. When all **three** digits are the same, the occupations belong to the same **Group**. When the **first two** are the same, the occupations belong in the same **Division**. The **first** digit indicates the occupational **Category**. After you read the description of the occupation which interests you, you may want to scan the related occupations within the **Group**, the **Division**, and **Category**.

Using the Supplement to the Dictionary of Occupational Titles

The **Worker Trait Group Guide** does not contain a complete listing of the occupations in each Worker Trait Group. To locate a complete listing of these occupations, use the **Supplement** to the DOT. The four-digit Worker Trait Group numbers used in this **Guide** and in the **Supplement** are the same. Use them to locate the pages in the **Supplement** where the occupational lists may be found.